

**DISADVANTAGED BUSINESS ENTERPRISES: EFFECT OF
DECERTIFICATION AND COMPETING IN THE GEORGIA
TRANSPORTATION CONSTRUCTION MARKETPLACE**

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TRANSPORTATION CONSTRUCTION MARKETPLACE**

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To Maurice, Mauri, Morgan and Mace, thank you for your unfailing love and support.

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“I can do all things through Christ who gives me strength” (Philippians 4:13).

In my home office is a vision board creatively covered with my goals, dreams, and aspirations, and at its center in bold block letters is this scripture. It is strategically positioned at the focal point of entry into the office to be a daily reminder on my doctoral journey that God provides the strength I need to accomplish the goal of earning a Doctor of Philosophy degree. There are many people to acknowledge that have supported me in this pursuit, but I must first give honor to my Lord and Savior, Jesus Christ, who has given me the strength to achieve it.

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LIST OF ABBREVIATIONS

CFR	Code of Federal Regulation
DBE	Disadvantaged Business Enterprise
DOT	U.S. Department of Transportation
EBO	Equal Business Opportunity
FAA	Federal Aviation Administration
FHWA	U.S. Federal Highway Administration
FTA	U.S. Federal Transit Administration
GDOT	Georgia Department of Transportation
GDP	Gross Domestic Product
GUCP	Georgia Unified Certification Program
FDOT	Florida Department of Transportation
IDOT	Illinois Department of Transportation
MDOT	Maryland Department of Transportation
MARTA	Metro Atlanta Regional Transportation Authority
NYSDOT	New York State Department of Transportation
OA	Operating Administration
SDOT	State Department of Transportation
SBA	Small Business Administration
STAA	Surface Transportation Act
TxDOT	Texas Department of Transportation
UCP	Uniform Certification Program
VDOT	Virginia Department of Transportation

SUMMARY

The U.S. Department of Transportation (DOT) allocates billions of dollars annually for transportation projects. State Departments of Transportation (SDOT) that receive federal assistance for transportation contracting must meet the requirements of the Code of Federal Regulations (CFR) Title 49: Transportation Part 26 (ECFR, 2016). This regulation ensures that all business enterprises have fair opportunities for federally funded transportation contracting. Therefore, SDOTs are mandated to develop DBE goals for participation of firms, certification of DBE firm eligibility, evaluation of their DOT-assisted contracts for compliance with goals to ensure nondiscrimination in federally assisted procurement. There are eight primary objectives for the DBE program. One of which is to assist the development of firms that can compete successfully in the marketplace outside the DBE program. The DBE program has been a source of controversy since its inception (La Noue, 2008). Research shows that both DBE and non-DBE firms have grievances with the effectiveness of the overall program. Some also believe that the program creates a dependency of its participant and that inputs of knowledge would assist with the growth and development of firms to become independent contractors outside of the program (Beliveau et al., 1991). A number of factors have been presented by prior research that hinder the growth and development of certified DBE firms with a focus on performance, internal impediments, and external impediments of the program. However, there is minimal data on the preparation of DBE firms by SDOTs and their ability to compete in the open market outside of the DBE program.

There is value in a study that evaluates the DBE program to determine if it is meeting the referenced objective. This research analyzes the participants of the DBE program and factors that contribute to the decertification of firms and affect their growth and development. Evaluation of certified DBEs, decertified DBEs and program administrators on this specific program objective contributes new data to the body of knowledge. The objective of this study is to evaluate the GDOT DBE program and that of similar SDOTs to determine if the DBE program in Georgia is assisting with the development of firms to compete in the marketplace. The main contribution of this research is to identify factors that assist the growth and development of DBE construction firms who voluntarily decertify and compete independently in the open market and explore the issues of certified firms that prohibit graduation. There are three outcomes of this study that contribute to the body of knowledge: regression models, development and decertification factors, and program administrator recommendations. The results of this research reveal if the program is meeting this objective for Georgia construction transportation projects based on factors obtained from the data analysis. The findings offer improvement to policy regarding the DBE program and government contracting for construction transportation projects.

CHAPTER 1. INTRODUCTION

Whether acknowledged as a Chinese proverb or credited to Jewish philosopher, scholar and physician, Moses Maimonides, the theory “Give a man a fish, and you feed him for a day. Teach a man to fish, and you feed him for a lifetime.” the epistemology is often interpreted as a solution to the social-economic issues of poverty. Though its origin is highly contested, the meaning behind the philosophy is applicable to the efficacy of the Disadvantaged Business Enterprise (DBE) program and the advancement of its participants in government construction contracting in the transportation market sector.

This research studies the participants of the DBE program and factors that contribute to program decertification and affect their growth and development. Using the Georgia Department of Transportation (GDOT) DBE program as a case study, I will answer the research question: *is the DBE program meeting the objective of assisting the development of firms that can compete successfully in the construction marketplace?* This research evaluates the GDOT DBE program and that of similar SDOTs to determine if the DBE program in Georgia is developing firms to compete outside the marketplace. There are several objectives of the DBE program. However, there is limited research on this specific objective. Evaluation of certified DBEs, decertified DBEs and program administrators on this particular objective of the program, contributes new data to the body of knowledge. The results of this study show if the program is meeting this objective for Georgia construction transportation projects based on factors obtained from the data analysis of this research.

1.1 Background of the Disadvantaged Business Enterprise Program

The origin of the DBE program is rooted in the development of the U.S. Small Business Administration (SBA). “The SBA was created in 1953 as an independent agency of the federal government to aid, counsel, assist and protect the interests of small business concerns, to preserve free competitive enterprise and to maintain and strengthen the overall economy of our nation” (SBA, 2020). The SBA supports small businesses through providing funding assistance in various forms including loans, loan guarantees, contracts, and counseling. Created to ensure a level playing field for small businesses, SBA recognized that the number of DBE contract awards was disproportionate to non-minority contractors (Koehn and Espailat, 1984). This led to the creation of several programs administered by SBA for underrepresented groups. Included in such programs is the 8(a) Business Development program, a set-aside and sole source program that ensures at least five percent of federal contracts are awarded to DBEs. Additionally, the SBA regulated the definition of socially and economically disadvantaged businesses generally classified as Black America, Asian Pacific American, Hispanic American, Native American, and Subcontinent Asian American (SBA, 2020). The development of the SBA expanded government commitment to equal opportunity with federally assisted contracts which resulted in a series of executive orders that led to the founding of the DBE program.

In 1982, recognizing the need to assist socially and economically challenged businesses with securing federal transportation projects, the first DBE statutory provision, the Surface Transportation Assistance Act (STAA), was enacted by Congress to develop the DBE program (STAA, 1982). “This provision required the DOT (Department of Transportation) to ensure that at least 10% of the funds authorized for the highway and

transit federal financial assistance programs be expended with DBEs”(DOTa, 2016). In 1987, the program was amended to include women and has since established the DBE goal of including firms owned by women and minority group members (STURAA, 1987). The Federal Highway Administration (FHWA), the Federal Aviation Administration (FAA) and the Federal Transit Administration (FTA) are the major DOT Operating Administrations (OAs) that enforce the program.

Oversight of the program is conducted by the Departmental Office of Civil Rights. The FHWA, FAA and FTA are required to follow the DBE regulations as stated in the Code of Federal Regulations (CFR) Title 49: Transportation Part 26 (ECFR, 2016). The DOT, state departments of transportation (SDOT) and local transportation agencies have different roles and responsibilities in the administration of the DBE program (see Table 1). State and local transportation agencies who are recipients of federal transportation funds administer the program under the rules and guidelines also as directed by the CFR. They must develop and implement DOT programs that comply with the DOT standards as outlined in the eight objectives of 49 CFR Part 26.

Table 1 Roles and Responsibilities of DOT, SDOTs, and Local Transportation Agencies (DOTa, 2016)

DOT Responsibilities	SDOTs/Local Agency Responsibilities
Developing the rules and regulations for the national DBE program	Certify the eligibility of DBE firms to participate in their DOT-assisted contracts
Providing guidance and conducting oversight to make sure that these rules and regulations are followed by the recipients of DOT funds	Evaluate their DOT-assisted contracts throughout the year and establish contract-specific DBE subcontracting goals as necessary to achieve the overall goal of the agency
Considering appeals from state/local certification decisions	Establish narrowly tailored goals for the participation of disadvantaged entrepreneurs

Table 2 identifies the objectives of the regulations. These agencies are mandated to develop DBE goals for participation of firms, certification of DBE firm eligibility, evaluation of their DOT-assisted contracts for compliance with goals to ensure nondiscrimination in federally assisted procurement. The DOT ensures that all business enterprises have fair opportunities for federally funded transportation contracting. The main objectives of the DBE Program are:

- To ensure that small disadvantaged business enterprises (DBE) can compete fairly for federally funded transportation-related projects;
- To ensure that only eligible firms participate as DBEs; and
- To assist DBE firms in competing outside the DBE Program (DOTa, 2016).

Table 2 Objectives of PART 26 – Participation by DBE in Department of Transportation Financial Assistance Programs (DOTa, 2016)

Objectives of C.F.R. § 26.1 for DBE Participation	
a)	To ensure nondiscrimination in the award and administration of DOT-assisted contracts in the Department's highway, transit, and airport financial assistance programs
b)	To create a level playing field on which DBEs can compete fairly for DOT-assisted contracts
c)	To ensure that the Department's DBE program is narrowly tailored in accordance with applicable law
d)	To ensure that only firms that fully meet this part's eligibility standards are permitted to participate as DBEs
e)	To help remove barriers to the participation of DBEs in DOT-assisted contracts
f)	To promote the use of DBEs in all types of federally assisted contracts and procurement activities conducted by recipients
g)	To assist the development of firms that can compete successfully in the marketplace outside the DBE program
h)	To provide appropriate flexibility to recipients of Federal financial assistance in establishing and providing opportunities for DBEs.

1.2 Regulatory Background

The Civil Rights Movement of the 1960s was a pivotal point in American history that resulted in the development of laws and regulations that prohibited the inequality of human rights that plagued the nation. These new laws were anti-discriminatory and mandated that all people be treated equally. Among these laws was Executive Order 10925 of 1961, which served as the basis for the development of Affirmative Action. President John F. Kennedy issued Executive Order 10925 which established the President's Committee on Equal Opportunity and affirmed that "... it is the plain and positive obligation of the United States Government to promote and ensure equal opportunity for

all qualified persons, without regard to race, creed, color, or national origin, employed or seeking employment with the Federal Government and on government contracts...” (Executive Order, 2016a). In 1964, Congress established The Civil Rights Act which prohibited discrimination based on several factors including federally assisted programs. In 1965, President Lyndon B. Johnson issued Executive Order 11246 which mandated equal employment opportunities regardless of race, creed, color, or national origin (Executive Order, 2016b). These laws and regulations served as the foundation of the establishment of the DBE Program. Since the late 1970s and early 1980s, most states have employed affirmative action to award government contracts to underrepresented populations (Marion 2011). The DBE program was established under the authority of Title VI of The Civil Rights Act (Title VI, 2011).

1.3 DBE Certification

Generally, eligibility for certification in the DBE program is based on the ownership and “disadvantage” of a business enterprise. A business must be 51% owned and controlled by underrepresented groups that are socially and economically disadvantaged as defined by DOT and the SBA to become certified. Determination on the eligibility of a firm to participate in the program is further identified by business size, personal net worth, independence, control, and burden of proof allocation. A DBE firm must not have annual gross receipts over \$26.29 million in the previous three fiscal year cycle and disadvantaged persons must have a net worth of less than \$1.32 million for FHWA and FTA -assisted work (DOTa, 2021). If a firm meets the eligibility requirements, then it can obtain information and apply for DBE certification through contacting local state departments of transportation or state DBE liaison and certification officers. DBE program eligibility is

summarized in Figure 1. The DOT does not review DBE applications; however, it does provide information to firms on how to apply. A firm is ineligible for the program when it no longer meets the eligibility criteria.

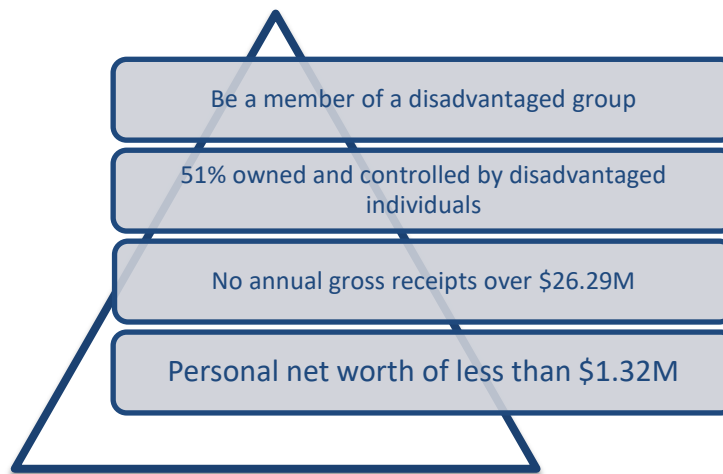


Figure 1 Summary of DBE Eligibility Guidelines (Source: Author)

Section 26.81 of the 49 CFR Part 26 requires that recipients of DOT financial assistance must participate in a Unified Certification Program (UCP) to certify DBEs for transportation projects (ECFR, 2016). In the State of Georgia, eligible applicants apply through the Georgia Uniform Certification Program (GUCP) which is administered through GDOT for highway, transit and airport transportation construction projects

(GDOT, 2016 and MARTA, 2020). The GUCP provides “one-stop shopping” to applicants for certification, such that an applicant is required to apply only once for a DBE certification that will be honored by all recipients in the state that receive federal funds for transportation projects (GDOT, 2016). The GUCP is responsible for certifying firms and maintaining a database of certified DBEs. Firms located in Georgia outside of Fulton, DeKalb, or Clayton counties and outside the state of Georgia must submit their certification application to GDOT. Firms located in Georgia within the counties of Fulton, DeKalb, or Clayton must submit their certification application to Metropolitan Atlanta Regional Transit Authority (MARTA) (GDOT, 2016 and MARTA, 2020). Figure 2 illustrates the certification agencies in Georgia for construction transportation projects through the GUCP.

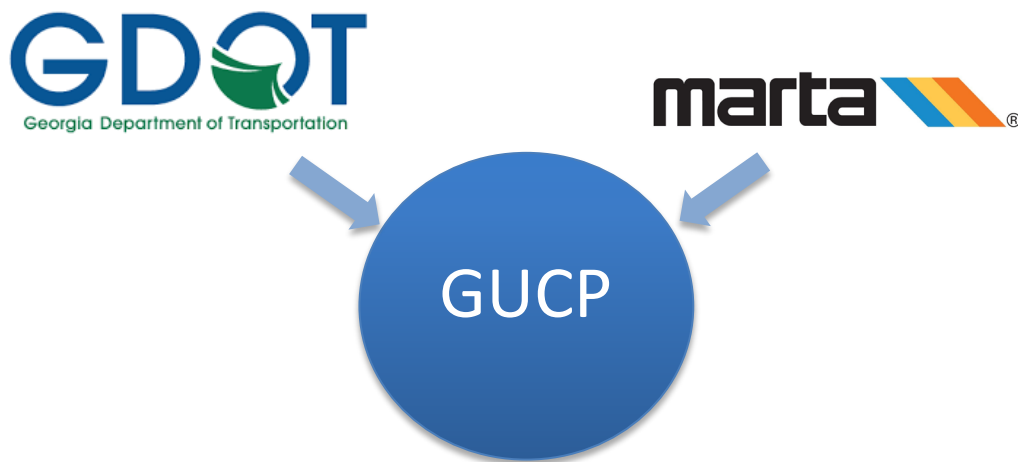


Figure 2 DBE Certification Agencies in Georgia (Source: Author)

1.4 Issues with the DBE Program

The issues surrounding minority contractors date back to the late 1970s (Glover 1977). Glover offered that financing, marketing, bonding, and recruiting, retaining and training labor issues in addition to lack of business management skills were some of the problems minority firms faced. The challenges of the DBE program remain over 40 years later. DBE firms, non-minority contractors, and policy administrators are the key program stakeholders. The problems of the program relative to DBEs are summarized as performance, internal impediments, and external impediments (Shrestha et al., 2016, Kim and Arditi, 2010, Beliveau et al., 1991, Chang, 1989).

Research shows that both DBE and non-DBE firms have grievances with the effectiveness of the overall program (Chang, 1989). Supporters of the program believe it is necessary to level the playing field for disadvantaged firms to fairly compete on government projects, while opponents view the program as race and gender biased allowing for preferential treatment of underrepresented groups. Non-minority firms contend that the inability to locate qualified DBEs, unbonded DBE risk transference, and lack of compensation for resource use are issues with the program (Beliveau et al., 1991). Yet, disparity studies conducted by SDOTs justify the continuous need for the DBE program and highlight the underutilization of qualified firms (Griffin and Strong, 2016). Ethical issues are also controversial for the program. For example, there has been litigation suggesting that the racial and gender requirements of the program violate the equal protection standards (La Noue, 2008) and an increase in fraudulent minority businesses (Shrestha et al., 2016).

Improvements to the program have occurred despite the continuous longevity of program impediments. Congress has revised regulations several times since the inception of the law. For example, most recently in the “Fixing America’s Surface Transportation Act” or the “FAST Act,” (FAST, 2015), which funded surface transportation programs—including but not limited to Federal-aid highways—at over \$305 billion for fiscal years 2016 through 2020 (DOTa, 2016). Though the administrators of the program have improved program elements such as allowing SDOTs to establish their own goal system, an ongoing problem is that the program does not contribute to the development of minority contractor independence. The literature review from this study suggests recurring policy issues that have maintained consistence since the inception of minority business programs. Researchers have continually suggested the need for policy improvement for minority firms to grow and develop. Change in policy is necessary to mitigate the issues that surround the program for affected minority and non-minority firms. The need for policy change exists because of the continual unfair treatment of minority construction firms past and present. Research suggests that policy is a contributor to the hindrances of minority firm advancement and modifications are necessary to wean DBEs from program dependency to independent contractors (Beliveau et al., 1991 and El-Itr and Kangari, 1994).

1.5 Decertification

DBE firms that no longer meet the eligibility requirements of the federal regulations are decertified from the program. Various voluntary and involuntary factors of program decertification result in removal according to 49 CFR Part 26. Figure 3 identifies the factors for program withdrawal. Any change in program eligibility can result in program

removal based on the DBEs compliance of notification of the change to the governing SDOT is considered a voluntary decertification. If DBEs are non-compliant with the administrative requirement of the program, then the firms may be involuntarily decertified or suspended. Suspension is temporal ineligibility, if a firm can validate their program compliance, however, reinstatement is denied if the firm is proven ineligible.

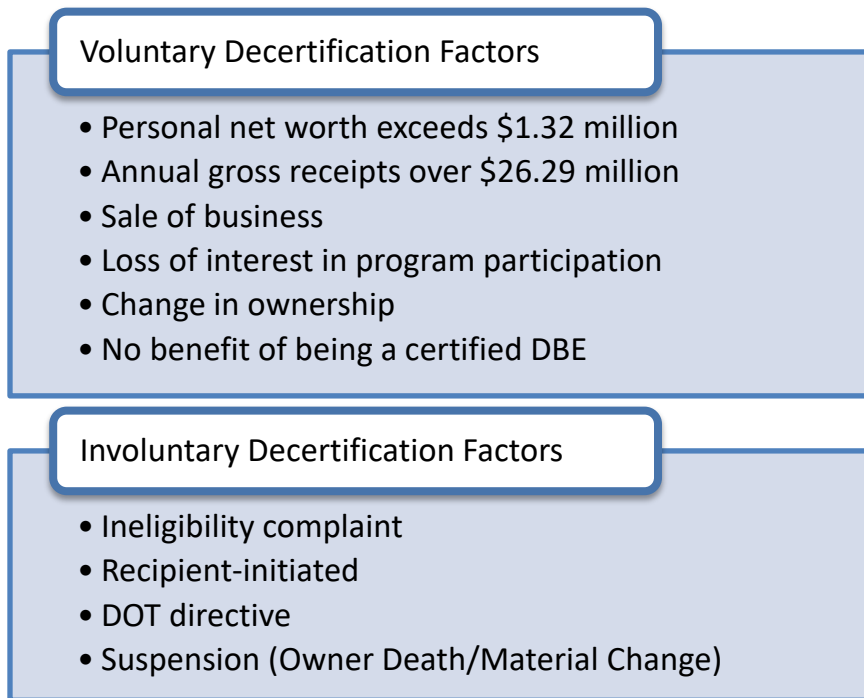


Figure 3 DBE Program Decertification Factors (Source: Author)

1.6 Research Purpose

The purpose of this research is to determine if DBE firms that voluntarily withdraw can compete in the open construction market after decertification. Certified DBEs firms, decertified DBE firms that no longer meet the program requirements and voluntarily withdraw are the primary focus of this research. Voluntary decertification factors validate the outcome of firm growth and development because they provide evidence that supports the ability or inability for firms to develop and successfully compete in the open market outside of the program. The scope of this research is not to provide an evaluation of the DBE program in its entirety or the performance of decertified firms. It is to specifically observe the development of certified DBEs and decertified DBE construction firms previously certified with GDOT and other similar SDOTs to determine if the program is meeting the objective to assist in the development of firms. The outcome of this study provides models, factors, and recommendations for program participants and administrators to meeting the objective of competing successfully in the marketplace outside of the DBE program.

1.7 Gaps in Knowledge

The data search on the DBE program and the ability of participants to compete in the open market outside of the program presented finite data. It is not known or to what extent DBE construction firms are able to compete specifically in the Georgia open market. The common themes in the body of knowledge analyze performance, impediments and propose new policy models based on DBE characteristics as referenced later in the study. However, the themes do not comprehensively explore participant dependency and the success factors

of decertified DBEs. Consequently, there is limited research on voluntary decertification and the key factors to firm performance outside of the program. Investigation into these areas provide information to policy makers, prime contractors and certified DBEs that could advance and improve growth and development of underrepresented groups in construction transportation projects.

1.8 Research Limitations

The basis of this research is non-theoretical, but evaluative in nature. Therefore, this research aims to study, appraise and offer recommendations to the existing DBE program policy for enhancement of its effectiveness in achieving program objectives. Investigation into to impractical application of the DBE program is not the intent of this study. Implementation of the research methodology provides new knowledge to DBE program policy through scientific analysis of certified and decertified DBE construction firms. The research findings offer new knowledge for stakeholders to consider in the developmental process for firms to compete in the open market. The key stakeholders of the DBE program are DBE firms, non-DBE firms, and program administrators. However, the focus of this research is limited to DBEs and program administrators and excludes the input of non-DBE firms. The limitations to the body of knowledge on the topic of DBEs as described in the previous section contend that exploratory research of prior program participants and certified DBEs may contribute to participant success in the construction marketplace beyond the program.

CHAPTER 2. MOTIVATION AND RESEARCH QUESTION

The success of small businesses is at the core of a healthy U.S. economy. Minority-owned businesses contribute \$1.4 trillion to the economy in combined gross receipts as reported by the Minority Business Development Agency (MBDAa, 2016). According to MBDA, small businesses are experiencing growth from government spending and underrepresented groups are expected to represent nearly 50% of the U.S. population by 2050 (U.S. Census Bureau, 2016). This means minority firms will have an even greater influence on the gross domestic product (GDP) including the construction market sector, which contributes \$3.4 billion (AGC, 2016) to the GDP. The U.S. Census Bureau (2012) reports that construction is the fourth largest market sector. However, minority groups including African Americans, Hispanic or Latino, Asian and women comprise less than 50% total employed by the construction industry (U.S. Department of Labor, 2015). AGC reports that most construction spending is from capital projects (AGC, 2016). Programs like the DBE program assist with government procurement to minority businesses and provide resources for their growth and development. Yet, the longevity of performance issues and persistent impediments with DBEs on construction transportation projects continue to affect program participants.

Major federal and state funds have been allocated to infrastructure improvements for SDOT construction transportation projects which has a direct impact on the need for qualified DBE firms. At the time of this research, the 2020 fiscal year federal budget included \$58.7 billion provided by the Fast Act and \$21.4 billion through discretionary funds for transportation projects (DOTc, 2019). Included in the SDOTs to receive billions

of dollars for transportation of construction projects is Georgia. GDOT aims to contribute \$11 billion dollars in construction transportation projects by 2030 (MMIP, 2019) through federal and state funding and programs like the Majority Mobility Investment Program (MMIP). Additionally, in February 2020, the Atlanta-Region Transit Link Authority (ATL) adopted the ATL Regional Transit Plan (ARTP) which is a \$27 billion portfolio of transportation projects that includes federal and local financial assistance (ATL, 2019). According to DBE policy, since 1983, 10% of federal funds used by SDOTs including GDOT must be awarded to certified DBEs (DOTa, 2016). Thus, supporting that DBE construction firms will make a favorable contribution to the Georgia economy. Identification of factors that could help DBEs with the growth and development of their firms could aid to their success within the DBE program and in the open market.

The main contribution of this research is to identify factors that assist the growth and development of minority construction firms who decertify (become ineligible) and compete independently in the open market and to explore the issues of certified firms that hinder progression. This study evaluates the GDOT DBE program in comparison to other similar SDOT programs. In order to achieve this objective, this study investigates the following questions:

RQ1: Do DBEs that are informed of and access program benefits voluntarily decertify?

There are eight objectives of C.F.R. § 26.1 for DBE Participation, and this study focuses on Section (g): “To assist the development of firms that can compete successfully in the marketplace outside the DBE program”. Minority contractors that meet the DBE

qualification criteria requirements for certification gain access to the program benefits.

Advantages of the program include (Shrestha et al., 2016):

- Increased partnering opportunities with majority businesses
- Market access
- Improved relationship with owners/prime contractors
- Increased opportunity for profit
- Financial security for work done
- Increased access to business consultation training
- Decreased competition

If firms receive access to the advantages, then why is program dependency a hindrance for firms to compete on the open market. Results of this specific research question provides an assessment of factors that limit advancement of DBE firms.

H1₀: Firms that are informed of and access program benefits develop their firms and voluntarily decertify

H1_a: Firms that are uninformed about and do not access program benefits do not develop their firms and are unable to voluntarily decertify

Figure 4 shows the research question and the hypothetical outcomes. Data from this study shows two key outcomes relevant to RQ1: 1) Identification of the process for informing firms about program benefits and 2) Disclosure of the impact of the advantages on firms who experience the program benefits as opposed to firms who do not.

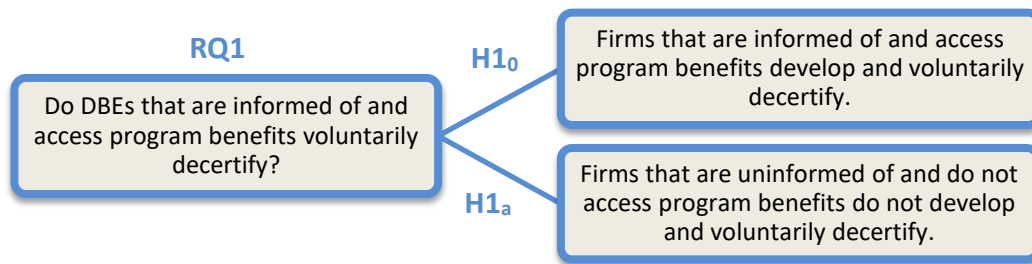


Figure 4 Research Question 1 and Hypotheses (Source: Author)

RQ2: What elements contribute to the voluntary decertification of firms from the program that cause decertification and qualification to compete on the open market?

As previously discussed in Chapter 1, DBE firms that voluntarily withdraw from the program are decertified for various reasons including: 1) Personal net worth exceeding \$1.32 Million, 2) Annual gross receipts over \$26.29 Million, 3) Sale of business, 4) Loss of interest in program participation, 5) Change in ownership, and 6) No benefit of being a certified DBE. DBE firms that no longer meet the eligibility requirements of the program must decertify. Firms with annual gross receipts over the firm's previous fiscal three years exceeding \$26.29 Million statutory cap would be ineligible and voluntary withdraw from the program. Decertification for this reason most likely makes firms eligible to compete in the marketplace outside of the DBE program because they have secured contracts that no longer qualify them as disadvantaged as defined by SBA. Additionally, if these firms participated in the business development and training resources within the program and

applied the knowledge acquired to their businesses, then the participation could have contributed to their growth. Therefore, participation in the business development resources offered by GDOT may contribute to voluntary decertification from the program. This would support the theories of other researchers on the topic discussed in the next chapter (Chang, 1989 and Beliveau et al., 1991).

The federal DOT DBE program generally requires any state that uses federal funds for construction procurement to establish a business development program (BDP) to assist firms in gaining the ability to compete successfully in the marketplace outside the DBE program (ECFR, 2016). “Each firm that participates in the BDP is subject to a program term as determined by the recipient SDOT. The term should consist of two stages: a developmental stage and a transitional stage” (EFCR, 2016). The GDOT DBE program offers various development opportunities for participants. This includes the GDOT DBE Supportive Services Program which offers “services designed to contribute to the growth and business sufficiency of DBEs so that they may achieve proficiency in competing for contracts and subcontracts” (CEI, 2016). Specifically, the Supportive Services Program offers training and consulting resources and the BDP. The BDP includes the Mentor/Protégé Program which partners DBE firms with an experienced government contractor that will work with the participant until first contract award (GUCP, 2019).

This study will determine if participation in training resources and the BDP offered by GDOT to DBEs is a necessary element for decertified DBEs to compete in the open market. Participation in the GDOT training resources is optional for certified firms, and only selected firms are permitted to participate in the BDP. GDOT administers its BDP through the DBE Supportive Service Vender, CEI DBE Supportive Services, via an

application process that identifies firms with the potential to be successful in the program (GUCP, 2019). “The purpose of the application is to uncover whether or not the proposed participant has the underlying infrastructure necessary to find opportunities, write proposals, win contracts and successfully perform” (GUCP, 2019). The training offerings open to all certified participants include courses that teach construction management and business development skills presented in both online and face-to-face formats depending on DBE preference. The GDOT program offers free training at no cost to certified DBEs. Research findings include certain characteristics of these firms such as scope, age, services and ownership to be contributing factors of decertification.

H2₀: DBE construction firms that participate in the development opportunities afforded by the program grow their firms toward ineligibility and voluntarily withdraw.

H2_a: DBE construction firms that do not participate in the development opportunities afforded by the program do not grow their firms toward ineligibility and voluntarily withdraw.

Firms that participate in the BDP are expected to obtain skills that will grow and develop their firms. Figure 5 shows a diagram of the research question and the relational outcomes.

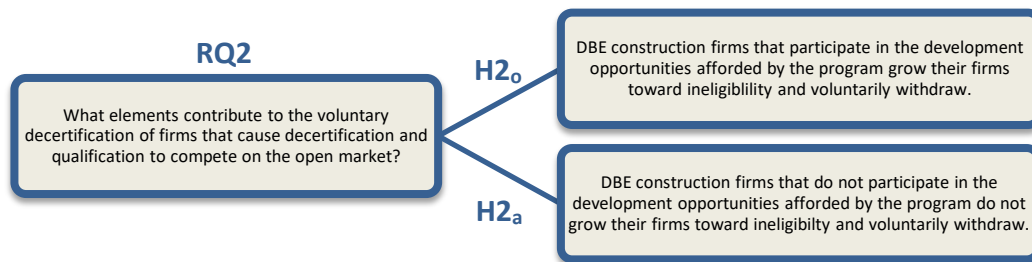


Figure 5 Research Question 2 and Hypotheses (Source: Author)

RQ3: Are decertified DBEs securing prime contracts and major subcontracts after voluntary decertification?

Exploring how decertified DBE firms voluntarily withdraw from the program offers new insight for policy administrators, certified DBE firms, and non-DBEs to potentially reduce or eliminate the program impediments. As described in the literature review of this study, research on the DBE program provides extensive information on performance and policy issues with affirmative action programs and the impediments minority construction firms endure. The data offers suggestions for program improvements and opinions of minority, non-minority participants, and authors. It references the benefits and disadvantages of the program and the barriers they create for underrepresented groups. However, absent from the literature is data on DBE firms that voluntarily withdraw and compete in the open construction market. The process used by decertified DBEs of the program to grow and develop their firms may provide relevant data

to assist program participants in the advancement of their companies and program administrators in effective policy change. Results of this question may justify policy change and program improvements.

H3₀: Decertified firms that qualify to compete on the open market are securing prime contracts or major subcontracts for GDOT construction projects.

H3_a: Decertified firms that qualify to compete on the open market are not securing prime contracts or major subcontracts for GDOT construction projects.

Firms that voluntarily withdraw from the program because they are ineligible due to increased net worth and or annual gross receipts over \$26.29 million have potentially in theory grown and developed their companies to compete on the open market. However, if firms voluntarily decertify for this reason and do not receive contract awards, they are qualified to obtain, then this may validate the need for program evaluation and improvement. Figure 6 shows the supposed outcomes of this research question.

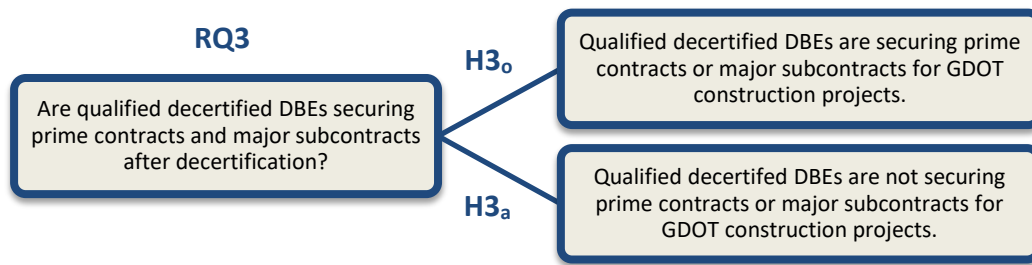


Figure 6 Research Question 3 and Hypotheses (Source: Author)

This study considers factors that contribute to the voluntary decertification of construction firms from the DBE program. This research shows how specific characteristics of these firms contribute to their ability to compete on the open market and creates a framework for certified DBE firms to consider for transitioning beyond the program. Research suggests that the current program model is an enabler to program dependency and limits growth and development to program participants. Therefore, this study focuses on assessing certified and decertified program participants to determine if the program is meeting its objective of developing firms to compete successfully in the marketplace outside the DBE program. Figure 7 shows the relationships of the research questions and proposed hypothesis. Understanding how firms are informed of the program advantages and if they obtain program benefits, the elements that lead to voluntary decertification, and the competitive performance of firms in the open market shows if the

effects of government contracting are favorable for key stakeholders. The primary objective of this research is to determine if graduates are successfully competing in the open market and to assist participants and SDOTs with the development of qualified DBE construction firms for transitioning outside of the program.

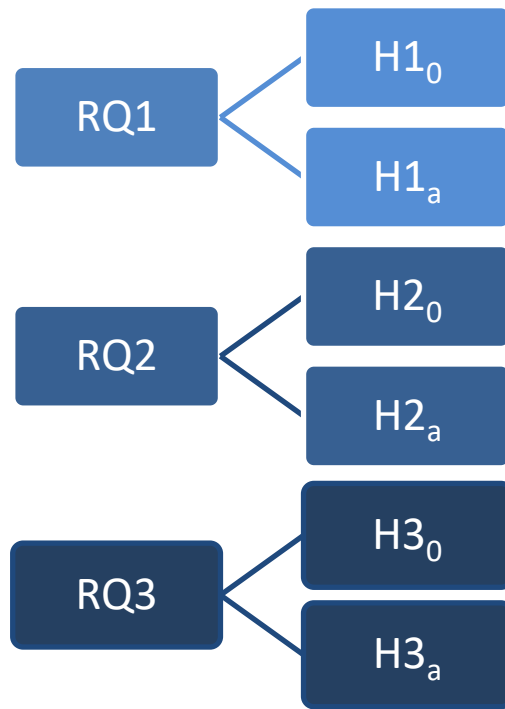


Figure 7 Research Questions and Hypotheses Relationship (Source: Author)

CHAPTER 3. LITERATURE REVIEW

The basis of this study is to identify the key issues that hinder the growth and development of certified construction DBE firms and the factors that contribute to the voluntary decertification of program participants. This chapter provides a review of the relevant literature for this research and exposes the gaps in literature. Performance, impediments and policy is the categorization that summarizes the theoretical frame of the literature (see Figure 8). Common theory in the research for construction transportation projects has focused on performance, impediments, and policy issues (including advantages and disadvantages) certified DBEs incur that contribute to program dependency. These themes suggest factors that prohibit the development and growth of certified firms in the DBE program. However, the literature is weak on the identification of factors that contribute to voluntary decertification of DBE program graduates and their competitive status in the transportation open market. A consolidation of the recurring issues with DBEs and a representation of the most relevant studies are shown in Table 3. The table captures performance and impediment issues with the program since 1997 spanning the course of 40 years and highlights the consistency of issues, advantages and disadvantages (Shrestha et al., 2016). The summary section of this chapter explains the evolution of the issues and identifies their resolve or non-resolve.

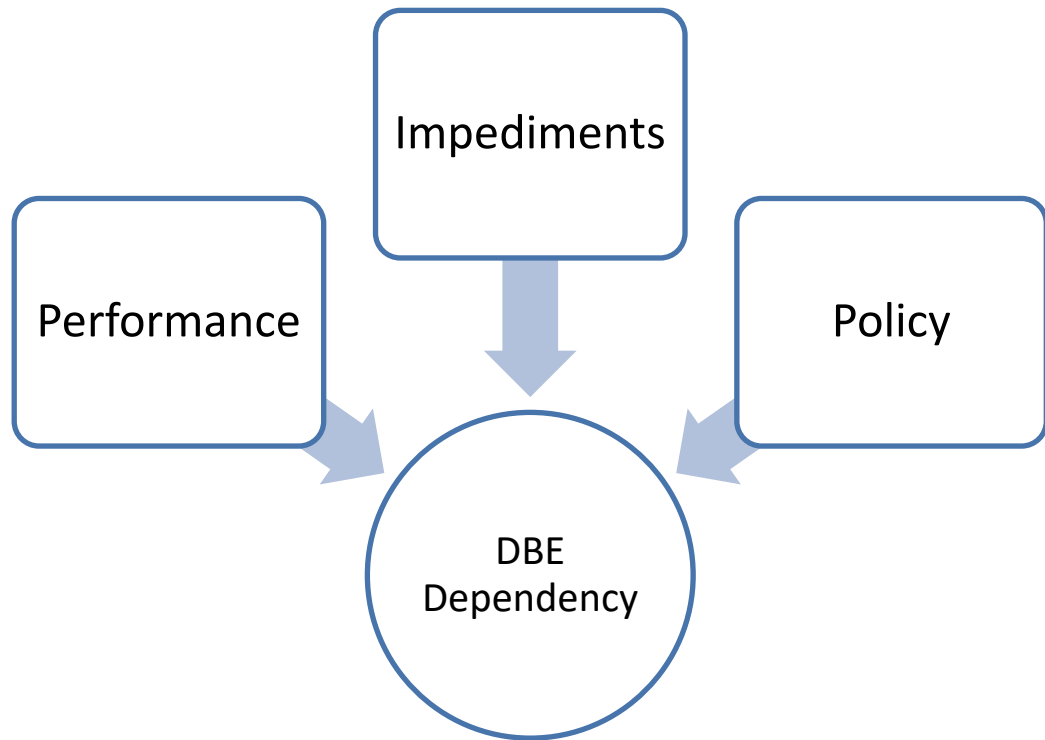


Figure 8 Theoretical Frame (Source: Author)

Table 3 Factors Related to Performance, Impediments, Advantages, and Disadvantages of Being a DBE (Shrestha et al., 2016)

Category	Factors	Sources
Performance	Relationship with owner/clients Relationship with employees Financial Safe work practices Quality management system Marketing Training and human resource development Technological innovations	Kim and Ardit (2010), Glover (1977) Kim and Ardit (2010) Kim and Ardit (2010), Chang (1989), Glover (1977) Kim and Ardit (2010) Kim and Ardit (2010) Kim and Ardit (2010) Kim and Ardit (2010) Kim and Ardit (2010)
Internal Impediments	Expensive manpower Lack of technology Unskilled manpower Lack of training and communication to staffs Lack of business management skills	Chang, 1989 Chang, 1989 Chang, 1989 Chang, 1989 El-Itr and Kangari (1994), Chang (1989)
External Impediments	Lack of funding Competition from other minority businesses Excessive government regulations Lack of firms' experience State of the economy Unable to obtain bonding Difficult to obtain payment of finished job Increased fraudulent minority businesses Underbidding	Beliveau et al. (1991), Chang (1989) Chang (1989) Beliveau et al. (1991) Chang (1989) TRB-DBE (2008) Beliveau et al. (1991), TRB-DBE (2008) Chang (1989) Beliveau et al. (1991), Koehn and Espailat (1984) Chang (1989)
Advantages	Increased partnering opportunities with majority businesses Market Access Improved relationship with owners/prime contractors Increased opportunity for profit Financial security for work done Increased access to business consultation training Decreased competition	Myers and Chan (1996), Koehn and Espailat (1984) Kim and Ardit (2010), Bates (1989), Glover (1977) VIP Survey (2015) VIP Survey (2015) VIP Survey (2015) Park (2010), VIP Survey Chang (1989)
Disadvantages	Excessive bid shopping Competition for less profit High competition for smaller jobs Existing bias within the minority business based upon gender, color, etc. Thriving of only fewer competent minorities Hampered work by minority suppliers acting as middleman only Working beyond the mainstream of business	Beliveau et. al (1991) Chang (1989), Myers and Chan (1996) Chang (1989) Myers and Chan (1996) Koehn and Espailat (1984) Beliveau et al. (1991) Beliveau et al. (1991)

3.1 Performance

Performance factors have been a major contributor to the hindrances of the growth and development of DBE firms according to the literature. Kim and Ardit (2010) developed a performance assessment model using the basic performance measurement principles of key performance indicators (KPIs), European Foundation for Quality Management (EFQM), and balanced scorecard (BSC). The model assessed seven performance issues and related performance factors using survey questions and scales. The key performance issues included financial, customer satisfaction, internal business, learning growth, safety, technological innovativeness, and quality management. Figure 9 summarizes the performance issues and factors as created in the performance measurement model.

Senior executives from minority and non-minority firms were the respondents of the study (Kim and Ardit, 2010). The findings suggest that non-minority firms outperform minority firms in four categories: finance, customer relationships, hiring and retaining more qualified personnel, and IT capabilities. The findings were similar to previous studies conducted by Bates (2006), Blanchflower et al. (2003), Chang (1989), and Glover (1977). These studies agree that non-DBEs outperformed DBEs in the referenced categories. The study also revealed that the size and age of DBEs are major contributors to performance outcomes. Kim and Ardit (2010) conclude that DBEs are generally smaller, and there is no significant difference in performance of larger and older DBEs compared to non-DBEs. Therefore, smaller and younger DBEs are outperformed by non-DBEs due to their age and size but not because they are DBEs. The authors recommend that the construction industry encourage diversity and find ways to nurture DBE companies to strengthen the economy

(Kim and Ardit, 2010). This supports the need to explore how firms are encouraged to grow and develop in the DBE program to compete in the open marketplace.



Figure 9 Proposed Company Measurement Performance Issues and Factors (Kim and Ardit, 2010)

3.2 Impediments

The government established affirmative action programs like the DBE program to help address the impediments that hinder the performance of underrepresented groups in the open market. Early research on DBE impediments conducted by Glover (1977) cited

that financing, marketing, bonding, and recruiting, retaining and training labor issues in addition to lack of business management skills were issues minority firms faced.

Glover's findings concluded that the impediment issues could be addressed by increasing minority contractor work volume and providing bonding, financial, managerial, and technical assistance. Over 10 years later, some of the same impediments continue to exist. For example, Chang (1989) suggested DBEs and non-DBEs argue financing, bonding, labor, management skills, cheap competition, marketing and debt collection are challenges faced by both types of companies. However, when compared to non-DBEs, the impediments DBEs incur are significantly different. Figure 10 summarizes the impediments of DBEs according to Chang (1989).

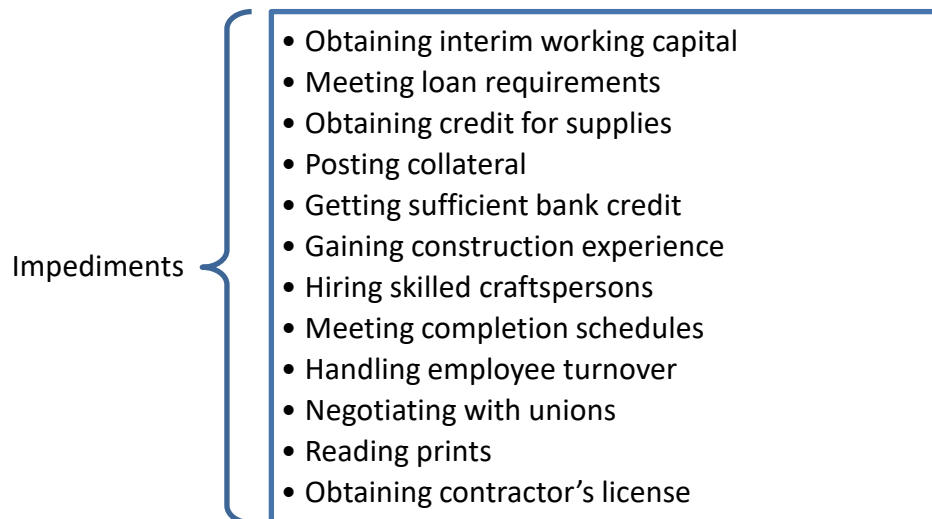


Figure 10 Summary of DBE Impediments (Chang, 1989)

The impediments also vary among DBE construction and professional firms, which are the two major minority groups in government transportation contracting. Shrestha et al. (2016) conducted a study that compared the rankings of various performance and impediments factors by both groups. The results of the study indicated that while both construction and professional DBE firms ranked the advantages of being a DBE similarly, there were significant differences between the two groups relative to business performance, impediments to success and disadvantages (Shrestha et al., 2016). The study also revealed recommendations from DBEs on improving their status to government policymakers (owners) and prime contractors. Table 4 and Table 5 summarize the DBE recommendations.

Table 4 DBE Improvement Recommendations for Government Policymakers (Owners) (Shrestha et al., 2016)

Government Policymaker/Owner Recommendations	
Make DBE paperwork requirements simple, quick and coherent	Provide more information on DBE contract requirements to clients/contractors
Reduce procurement time for DBE consulting contracts	Increase oversight of and help with collection of work payments
Make easier bonding provisions and requirements	Ensure legitimacy of DBE firms, workers and operations before awarding prime contractors
Increase government staff oversight for prime contractor compliance of DBE requirements Provide more direct DBE contract awards	Provide more information on DBE contract requirements to clients/contractors

Table 5 DBE Improvement Recommendations for Prime Contractors (Shrestha et al., 2016)

Prime Contractor Recommendations	
Provide more face-to-face interaction opposed to electronic communication	Provide genuine opportunities to contracted DBEs rather than acting like middlemen for contract fulfillment
Improve communication	Allow satisfactory time for bid submission
Stop bid shopping	Break large contracts into smaller contracts
Make more frequent payments	

3.3 Policy

As evidenced by the literature, DBE program policy contributes to the consistency of performance factors and impediments relative to the program. The research unanimously suggests a need for change to the program model due to the issues incurred by DBEs and non-DBEs. In early research on DBEs, the policy change recommendations are primarily the result of author opinions, DBE and non-DBE firms. The policy assessment studies can be summarized in three categories: 1) DBE Participation Increase, 2) DBE Knowledge and Assistance Input, and 3) Framework for New Policy Development. Studies by Chang (1987 and 1989), conducted a few years after the enactment of the Surface Transportation Act of 1982, were among the first to address policy issues based on DBE and non-DBE opinions. However, the focus of this research is on DBEs. Non-DBE challenges, difficulties and issues are beyond the scope of this study.

3.3.1 DBE Participation Increase

Chang's studies identified suggestions for improving DBE participation and methods to deal with program challenges. The STAA stated that at least 10% of federal funds appropriated under the Act should be expended to small businesses and DBEs (STAA, 1982). Chang (1987) identified ways to increase DBE contractor participation in the construction industry in the DBE difficulty areas of finance, bonding, management skills, labor and training, and other. These suggestions were based on the opinions of DBEs and non-DBEs. Table 6 shows the areas of difficulty for DBEs and identifies the top three most beneficial, urgently needed, and feasible program suggestions to improve DBE participation on government transportation contracts according to Chang (1987). Though none were unanimously accepted, both DBEs and non-DBEs felt the suggestions needed to be implemented into the program policy.

Chang (1989) furthered his research on program policy offering that because both DBEs and non-DBEs face difficulties, policy makers should search for the causes and specific workable solutions for helping both minority and non-minority contractor types. However, the focus of this research is on DBEs. Non-DBE challenges are beyond the scope of this study. Other studies by Beliveau et al. (1991) and El-Itr and Kangari (1994) proposed different models and recommendations to address the effect government procurement processes have on the ability of DBE firms to compete on the open market.

Table 6 DBE Difficulty Areas and Policy Suggestions (Chang, 1987)

Difficulty Areas	Most Benefit	Most Urgent Need	Most Feasible
Finance	Provide incentives to banks and lending institutions to develop a special long-term financing program.	Encourage banks and lending institutions to appoint officers who specialize in working with minorities.	Government guaranteed loans.
Bonding	Relaxed bonding requirements for governmental work.	Encourage insurance companies to establish special bonding agents to work with minorities.	Encourage insurance companies to streamline bonding procedures.
Training and Education	Increase construction training opportunities by local school and college facilities.	Encourage insurance companies to establish special bonding agents to work with minorities.	Encourage insurance companies to streamline bonding procedures.
Other	Encourage joint ventures among established, successful contractors and minorities	Provide incentives to established contractors to set up internship programs for minorities	Seek commitment of established successful contracting firms to minority development.

3.3.2 DBE Knowledge and Assistance Input

Beliveau et al. (1991) proposed a new model program “based on an input of education and assistance, as opposed to set-asides, to provide for the development of inexperienced minority contractors into independent qualified firms.” The authors offer the framework for the proposed DBE model program through surveys responses from DBEs and prime contractors. Figure 11 illustrates their input versus output theory, which shows

the components of the existing program and the proposed new model. The authors believe that more emphasis on the inputs of knowledge and assistance will yield the desired output of producing qualified minority contractors in transportation projects.

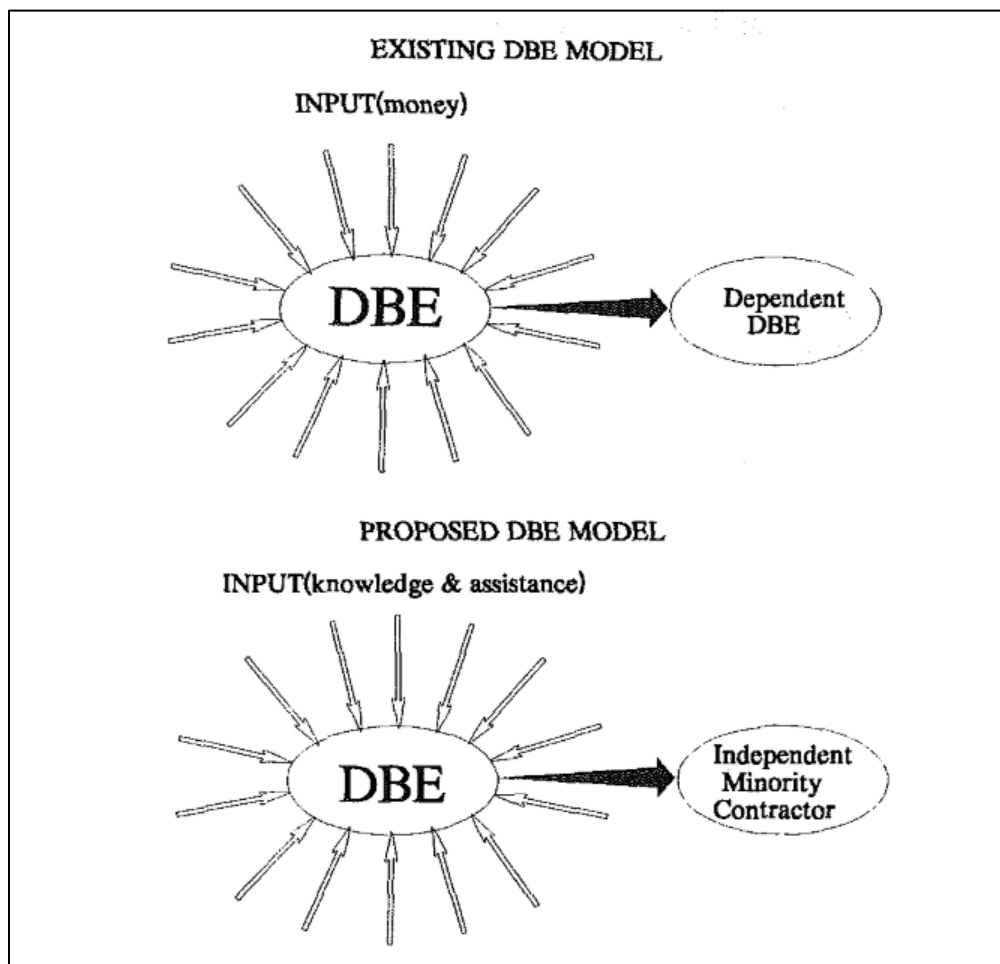


Figure 11 Input and Output for Existing and Proposed Model (Beliveau et al., 1991)

The model proposed by Beliveau et al. was designed to develop qualified independent contractors capable of competing in the open market. Their input/output theory centered on providing DBEs with the necessary resources and mentorship and requiring them to compete on the open market. The researchers believed that the implementation of this theory would lead to the elimination of dependency resulting from a sheltered environment that does not require firms to grow and develop. Figure 12 summarizes the primary model program components.

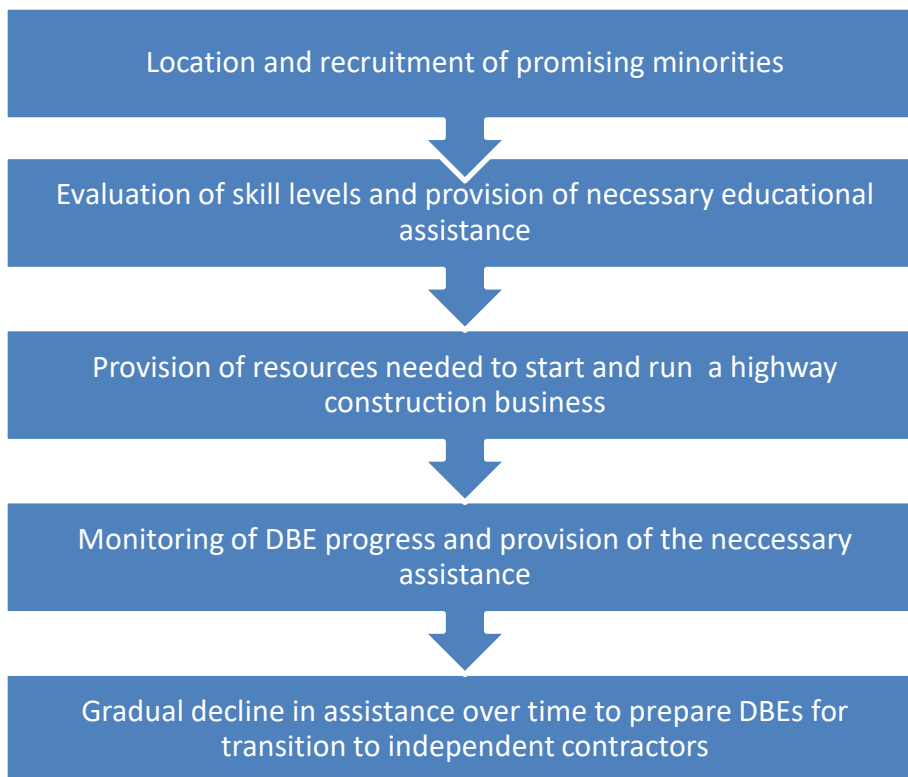


Figure 12 Primary Components of Model Program (Beliveau et al., 1991)

3.3.3 Framework for New Policy Development

El-Itr and Kangari (1994) conducted a similar study that proposed a framework for policy development with Equal Business Opportunity (EBO) programs in Atlanta. Their study identified the weaknesses of EBO programs in 1994 like the DBE program through the review of policy, political environment and issues created in the industry. The study collected data from surveys consisting of three categories of interviews including: contractors, bonding companies and minority subcontractors. The conclusions of the study were similar to the results of Chang (1989) and Beliveau et al. (1991) regarding policy assessment and improvement in the areas of finance, bonding, training and education, and program independence. Figure 13 is a graphical depiction of the EBO program proposed by El-Itr and Kangari. The study also recommended strategies for the implementation of the proposed framework which included the following:

- Form an advisory organization to help program administration;
- Maintain an up-to-date minority contractor's database;
- Develop a placement test;
- Place and certify minority contractors;
- Administer the graduation of minority firms;
- Provide technical and other assistance to minority contractors;
- Monitor general contractor compliance with attaining minority participation levels included in bid proposals; and
- Monitor minority contractor performance (El-Itr, 1992).

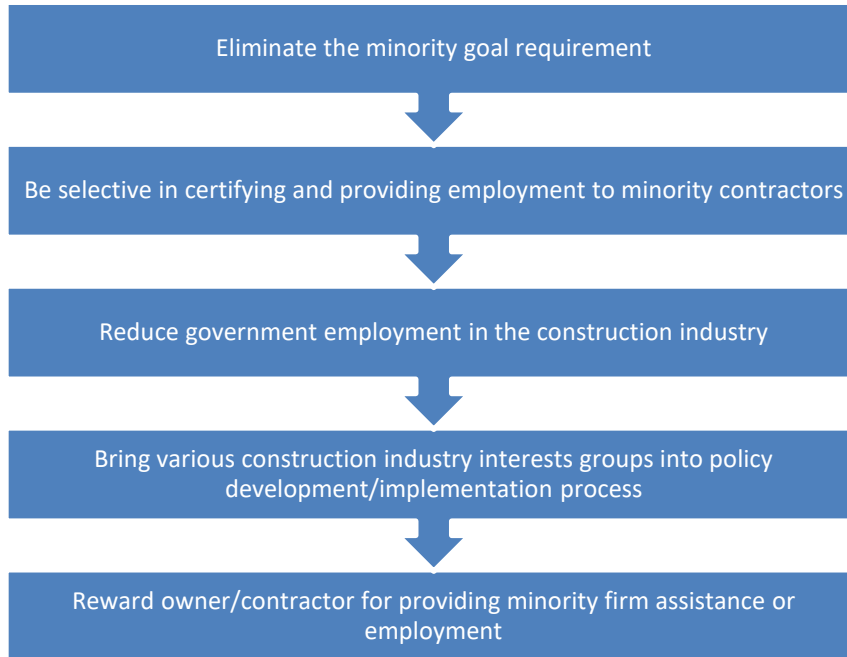


Figure 13 Framework for Policy Development (El-Itr and Kangari, 1994)

Summary of Literature Review

There is limited data on the topic of growth and development of DBEs in construction transportation market sector. The literature in this study spans the course of 40 years from 1977 through 2016 with periodic gaps in data. Regulatory enactments correlate with the cycle of research on the topic of DBEs. Generally, DBE regulations address minority participant inclusion, percentage of financial-assisted contracts set-aside for DBEs, and an increase in funding for federally assisted transportation projects appropriated incrementally for four to six years. The impact of regulatory requirements to the business operations of the construction transportation market sector may suggest the

development of research studies surrounding the issues that evolve from new policy or amendments. Figure 14 shows the timeline of DBE laws.

DBE Laws	2015 “Fixing America’s Surface Transportation Act” or the “FAST Act,” (P.L. 114-94, Dec. 4, 2015)
	2012 Moving Ahead for Progress in the 21st Century Act “MAP-21” – 2012 (Sec. 1101)
	2005 Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users “SAFETEA-LU” – 2005 (Sec. 1101)
	1998 Transportation Equity Act for the 21st Century “TEA-21” - 1998 (Sec. 1101)
	1991 Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), Pub. L. 102-240, Stat. 1914
	1983 Surface Transportation Assistance Act “STAA” – 1983 (Sec. 105(f))

Figure 14 DBE Laws (DOT, 2016)

The recurring theme in the literature centers on DBE performance, impediments and policy that identify DBE issues and suggestions and recommendations for program improvements. Researchers developed program models in addition to DBE performance and impediment studies. The models recommended policy improvements that encourage DBE growth and development into qualified independent contractors while addressing the

issues of various interest groups in government contract awards. These models provided suggestions and recommendations, some of which have been addressed in current policy. Table 7 shows the literature theme categories and the issues, recommendations and implementation of recommended improvements to the DBE program. However, there is minimal knowledge on completion of the program and transition into the open market. This study explores contributing factors to program decertification and evaluates the program graduate's ability to secure government contracts outside of the program.

Table 7 Summary of Literature Review

Citation	Issues	Recommendation	Implementation
Performance			
(Kim and Arditi, 2010)	Non-minority firms outperform minority firms in four categories: finance, customer relationships, hiring and retaining more qualified personnel, and IT capabilities because of size and age	Construction industry should encourage diversity and find ways to nurture DBE companies to strengthen the economy	Title 49: Transportation Part 26 states recipients must have a business development program to assist firms in the ability to compete in the marketplace outside the program and may establish a "mentor-protégé" program (ECFR, 2016). Federal assistance SDOT recipients have implemented BDPs to comply with regulatory requirements.
Impediments			
(Glover, 1977)	DBEs face financing, marketing, bonding, and recruiting, retaining and training labor issues in addition to lack of business management skills	Increase minority contractor work volume and providing bonding, financial, managerial, and technical assistance	The implementation of section 105(f) of the Surface Transportation Act of 1982 regulates not less than 10% of allocated federal assistance for transportation projects should be extended to DBEs (STAA, 1982). The enactment of this law increased minority contractor work volume.

Table 7 (continued)

(Chang, 1989)	Financing, bonding, labor, management skills, cheap competition, marketing and debt collection are challenges	Policy makers to facilitate workable solutions for helping DBE and non-DBE contractors through the author's proposed research method	The application of the author's proposed research method (use of Chi-squared test and Z-tests) for problem differentiation of DBEs and non-DBEs is not referenced in the literature for this project.
			However, the Transportation Equity Act for the 21 st Century regulates an annual listing of DBEs and uniform certification for each state (TEA-21, 1998), which addressed workable solutions to DBEs and non-DBEs. The FAST Act addresses the DBE prompt payment rule to ensure compliance of recipients. The law acknowledges discrimination and barriers continue to pose obstacles for DBEs (FAST Act, 2015).
Policy			
(Shrestha et al, 2016)	Significant differences between the DBE construction and professional firms relative to business performance, impediments to success, and disadvantages	Government policy-maker recommendations to improve the work of DBEs and prime contractor recommendations for fulfilling DBE requirements; Prime contractor recommendations to improve work with DBEs	
(Chang, 1987)	DBE difficulty areas of finance, bonding, management skills, labor and training, and other	Provide incentives to banks and lenders, relax bonding requirements, increase construction training, encourage joint ventures	Training and joint ventures are encouraged in compliance with Title 49 (ECFR, 2016). SDOTs promote joint venture opportunities among program participants.
(Beliveau et al., 1991)	DBE set-aside model creates program dependency	New model program "based on an input of education and assistance, as opposed to set-asides, to provide for the development of inexperienced minority contractors into independent qualified firms	Title 49: Transportation Part 26 states that recipients must have a business development program to assist firms in the ability to compete in the marketplace outside the program and may establish a "mentor-protégé" program (ECFR, 2016). The results of this study will identify implementation effects of this theory.
El-Itr and Kangari (1994)	Issues in the areas of finance, bonding, training and education, and program independence	Eliminate minority goal requirement, be selective in DBE certification, reduce government employment in construction, reward owner/contractor for providing DBE assistance	The goal requirement has not been eliminated in current law and state recipients must comply with federal regulation established in Title 49 (ECFR, 2016). The government continues to regulate and employ the administration of the DBE program.

CHAPTER 4. RESEARCH METHODOLOGY

This chapter discusses the research methodology used to answer the research question is the DBE program meeting the objective of developing firms to compete in the open market. Limited research on DBE graduates and their ability to be competitive after decertification motivated this study to analyze the elements leading to decertification and prime contract or major subcontract awards to DBE program graduates. The results of this study serve as a framework to assist the DBE program with one of its objectives: “...the development of firms that can compete successfully in the marketplace outside the DBE program” (C.F.R. § 26.1Section (g)). The research methodology for this study is comprised of four main components (Figure 15): 1) Program Theory, 2) Research Design, 3) Evaluation, and 4) Expected Contributions.

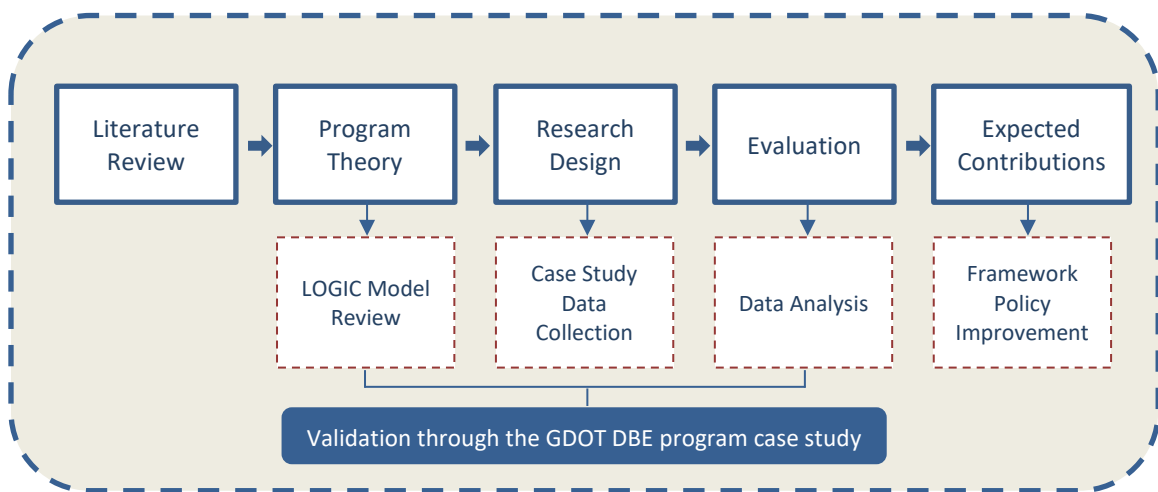


Figure 15 Research Methodology (Source: Author)

4.1 Prior Research

As discussed in chapter 3 of this study, prior research on DBEs focus on performance, impediments and policy assessment of certified program participants. As previously shown in the theoretical frame (see Figure 16), these issues contribute to program dependency and hinder DBE growth and development which impedes their ability to graduate from the program. Program disadvantages are also a common theme in the existing body of knowledge taken from the perspective of current program participants. However, statistical data on graduates from the program is limited. Refer to chapter 3 for details on previous research.

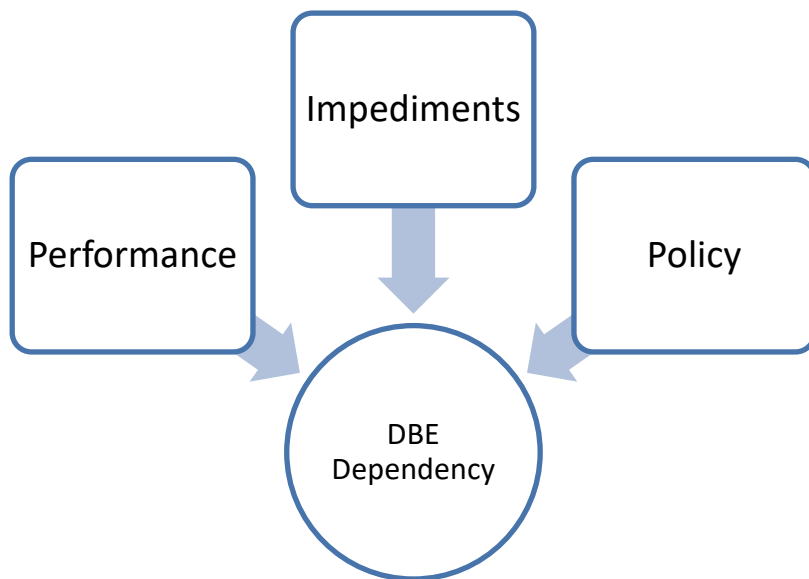


Figure 16 Theoretical Frame (Source: Author)

This study addresses the gaps in knowledge by offering new data on graduates of the DBE program and their ability to compete outside the program in the construction marketplace. The hypotheses (Table 8) introduced in chapter 2 explore the relationship of the research objective and the desired outcomes of this study. The research design defines the strategy to integrate the theoretical frame, research questions and program theory.

Table 8 Study Hypotheses

Research Questions	Hypotheses
RQ1: Do DBEs that are informed of and access program benefits voluntarily decertify?	<p>H1₀: Firms that are informed of and access program benefits develop and decertify.</p> <p>H1_a: Firms that are uninformed of and do not access program benefits do not develop and decertify.</p>
RQ2: What elements contribute to the voluntary decertification of firms that cause decertification and qualification to compete on the open market?	<p>H2₀: DBE construction firms that participate in the development opportunities afforded by the program grow their firms toward ineligibility and voluntarily withdraw.</p> <p>H2_a: DBE construction firms that do not participate in the development opportunities afforded by the program do not grow their firms toward ineligibility and voluntarily withdraw.</p>
RQ3: Are qualified DBEs securing prime contracts and major subcontracts after decertification?	<p>H3₀: Decertified firms that qualify to compete on the open market are securing prime contracts or major subcontracts for GDOT construction projects.</p> <p>H3_a: Decertified firms that qualify to compete on the open market are not securing prime contracts or major subcontracts for GDOT construction projects.</p>

4.2 Program Theory

Evaluability of the DBE program is illustrated by use of program theory, which is the assumption that the inputs (resources and constraints), activities (services provided), and outputs (service usage) of a program will lead to the program desired outcomes by depiction of a program's organizational plan (Rossi et al., 2004). Assumptions and conceptual factors are also a component of the logic model. Assumptions describe the belief organizations have about the program and perception of how it works (program theory), and contextual factors are the conditions over which they have minimal or no control that can affect success either positively or negatively (Wholey et al., 2004). "Program theory explains why the program does what it does and provides the rationale for expecting that doing so will achieve the desired results (Rossi et al., 2004)." Expression of an organizational plan of a program in the form of a logic model is common. "The logic model captures the logical flow and linkages that exist in any program. Even in cases where the theory of a program has never been made explicit, the logic model approach can help to uncover, articulate, present and examine a program's theory (Savaya et al., 2005)." Therefore, a logic model of the DBE program is provided to assist the reader in understanding the relationship between the research objective and research design (see Figure 17).

4.2.1 Review of the Logic Model

The research design facilitates the research objective for this study to:

- Determine if the DBE program encourages participants to voluntarily decertify by assisting firms with access to program benefits (RQ1);

- Identify the elements that contribute to the voluntary decertification of DBEs from the program and qualifies them to compete on the open market (RQ2); and
- Understand if qualified decertified DBEs are securing prime contracts and subcontracts after decertification (RQ3).

The DBE program logic model is developed from the Title 49: Transportation Part 26 (ECFR, 2016) regulatory requirements for DBE programs and the objectives of DOT as adopted by SDOTs who receive federal assistance for transportation projects (DOTa, 2016). The theoretical frame suggests that the program model creates dependency, and therefore hinders the long-term outcomes of decertification (graduation) and competing on the open market. However, evidence on the capabilities of decertified firms to compete after decertification is limited and provides the motivation for this study. This study requires an understanding of the logic model actions which are the assumptions that lead to the desired outcomes for the program and the contextual factors in contrast that support the theoretical frame. The research objective relates to the logic model in that answers to the research questions will determine if the inputs, activities, and outputs afford firms to graduate and compete on the open market.

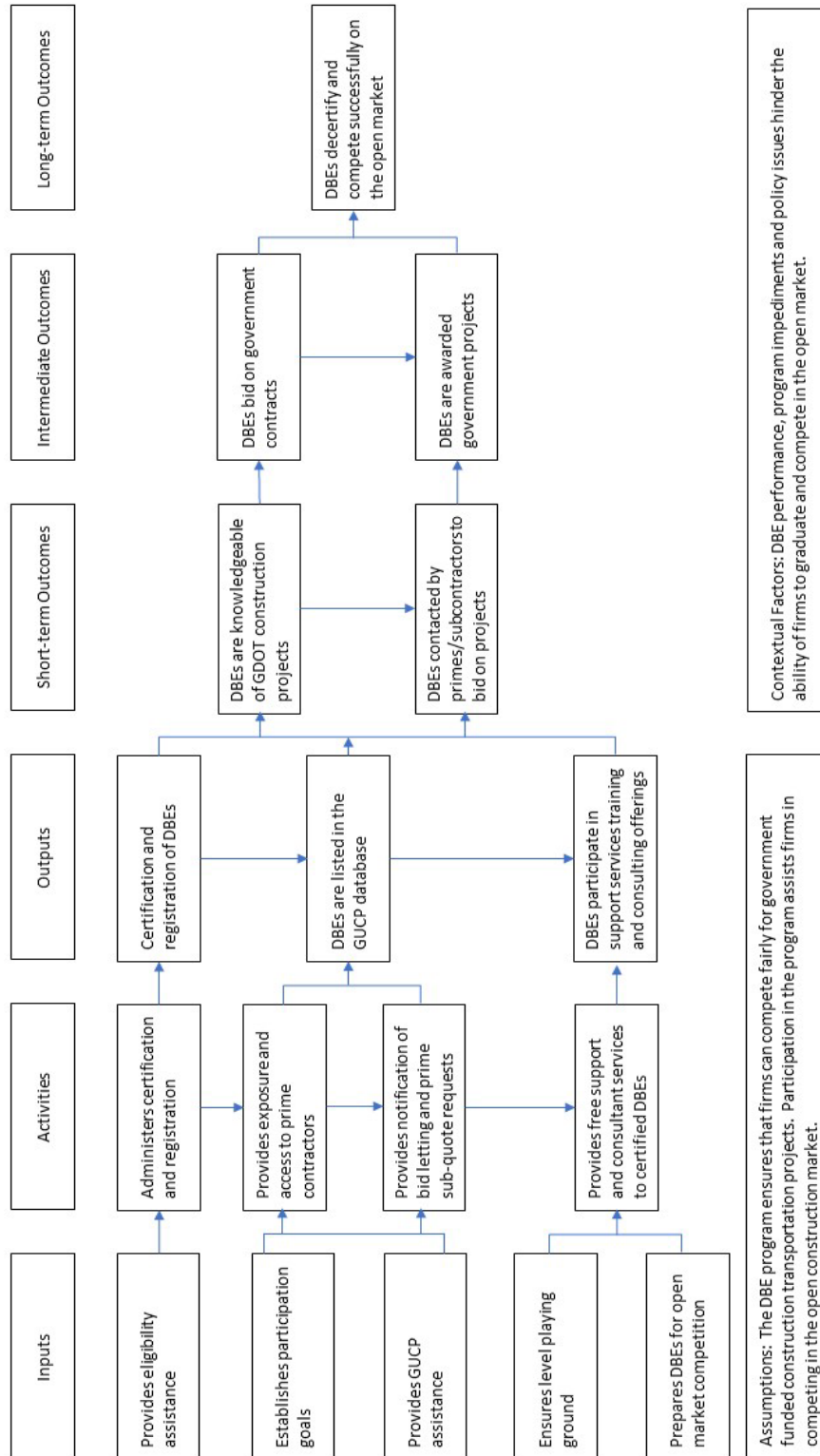


Figure 17 DBE Program Logic Model (Source GDOT, 2016 and Author)

4.3 Research Design

As evidenced by the theoretical frame and logic model, theoretical research or practical guidelines on the ability of decertified DBEs to compete in the open market are lacking. Therefore, this study aims to determine if the DBE program is preparing firms to be successful bidders outside of the program and provide factors for certified DBEs that positively or negatively affect their ability to decertify and be competitive in the construction marketplace. The results of this research can be used as a framework to guide DBEs to desired ineligibility and becoming independent contractors. The outcomes of this study also suggest a framework for improvement to the DBE program logic model. This study uses the case study method and includes survey tool, interviews, and the websites of SDOTs to achieve the proposed research objective.

4.3.1 Case Study

The case study method “is used in many situations, to contribute to our knowledge of individual, group, organizational, social, political, and related phenomena” (Yin, 2009). Case studies are a commonly used method for research on DBEs (Bates, 2006; Beliveau et al., 1991; Chang, 1987; Duncan, 2015; El-Itr and Kangari, 1994; La Noue, 2011; Marion, 2011). This is evident in prior research on the DBE topic by researchers that reviewed affirmative action program policies, construction industry issues with affirmative action programs, and interviewed program participants (El-Itr and Kangari, 1994). A fundamental characteristic of case studies is that the researcher “does not start out with a priori theoretical notion (whether derived from research or not)” because until data is collected and analyzed the best or most logical theories and explanations are unknown

(Gillham, 2009). A significant strength of the case study method involves using multiple sources and techniques in the data gathering process (Shandana and Mujtaba, 2016). Therefore, this study used multiple sources for data collection including the surveys, interviews, SDOT websites, and database references. The survey and interview participants included certified DBEs, decertified DBEs, and DBE administrators. The website references included the DOT and SDOT websites. The database references included the DOT DBE database and SDOT DBE databases detailed in the latter part of this chapter. This methodology is used in prior research on the DBE topic by researchers that reviewed affirmative action program policies, construction industry issues with affirmative action programs, and interviewed program participants (El-Itr and Kangari, 1994). The goal of this method is not to offer statistical generalization, but to provide to expand and generalize theory (Yin, 2006). The case study for this research is not intended to be stand-alone but is embedded in the research design for contrast with the statistical analysis. The case study was conducted independently, however, the findings are merged with the results of the qualitative analysis in chapter 5.

4.3.2 Case Study Selection

The case study selection for this research was based on three primary factors: 1) regional location; 2) number of DBEs; and 3) policy amendments.

4.3.2.1 Regional Location

There are 50 SDOTs, the District of Columbia, and the US commonwealth territories of Puerto Rico and the Virgin Islands located in 10 geographic regions (see Figure 18) that participate in the DOT DBE program (DOTa, 2016). Research on DBEs

frequently includes data based on case studies of SDOT programs within the southern, eastern and mid-western U.S. geographical locations or the Great Lakes, Northeast, Mid-South Atlantic, and Southeast DBE regions. This is primarily because minority businesses are located within states that have a major metropolis (MBDAb, 2018). The most commonly cited DBE research that uses the case study method samples data from Georgia, Florida, Illinois, and Maryland in neighboring DBE regions (Beliveau et al., 1991; Chang, 1987; Duncan, 2015; El-Itr and Kangari, 1994; La Noue, 2011; Marion, 2011). Additionally, SDOT disparity studies use data of states in close proximity of the subject state. The DOT DBE law regulates that disparity studies may be obtained by states to provide evidence for the existing need of the DBE program and assistance with DBE goal requirements (ECFR, 2016). The studies will often reference states by adjacent DBE program region or census regional location (BBC, 2012; Griffin and String, 2016). Therefore, the GDOT DBE program will serve as a case to validate the research hypotheses with comparative analysis of SDOTs or cases in similarity and proximity including Florida, Maryland, New York, Illinois and Texas.

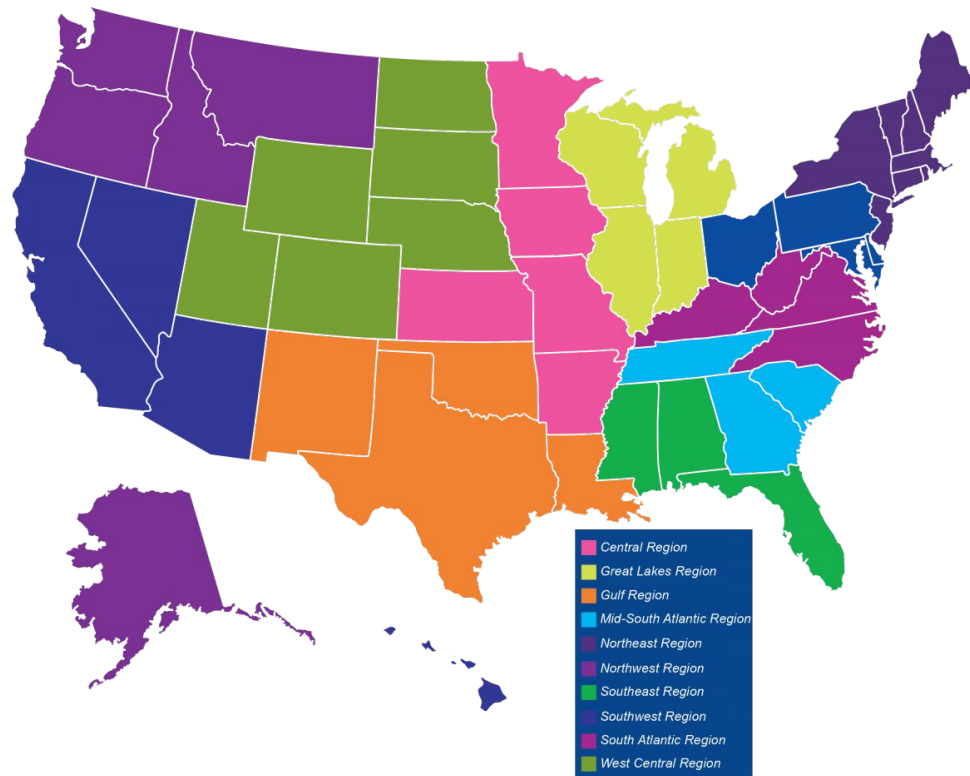


Figure 18 DBE Regional Map (DOTb, 2015)

4.3.2.2 Number of DBEs

“The State of Minority Business Enterprises: An Overview of the 2012 Survey of Business Owners” report for fiscal year 2018 by MBDA states the five states with the largest number of minority businesses in 2012 as: California (1,619,857), Texas (1,070,392), Florida (926,112), New York (709,021), and Georgia (371,588) (MBDA, 2018). These five states represented 59.1 percent of all US minority firms and contain 50.4 percent of the Nation’s total minority population (MBDA, 2018). According to the GDOT database, GDOT has nearly 600 certified DBEs that provide construction related services.

Additionally, Georgia has received an average of nearly \$2 billion in federal funding for transportation projects over the past five years (GBPI, 2015, 2016, 2017, 2018 and 2019). These projects must at a minimum aim to meet the 10% national level aspirational goal for DBE use or customized goal relative availability of DBEs in the Georgia market (ECFR, 2016). The need for qualified DBEs and their capability to compete outside of the program affects the local economy given the consistent federal disbursements over the past four years and the recently approved \$27 billion toward transportation in Georgia. This means the results of this data could provide evidence for the growth and development of certified DBEs, their transition toward voluntary decertification, and competing as independent contractors.

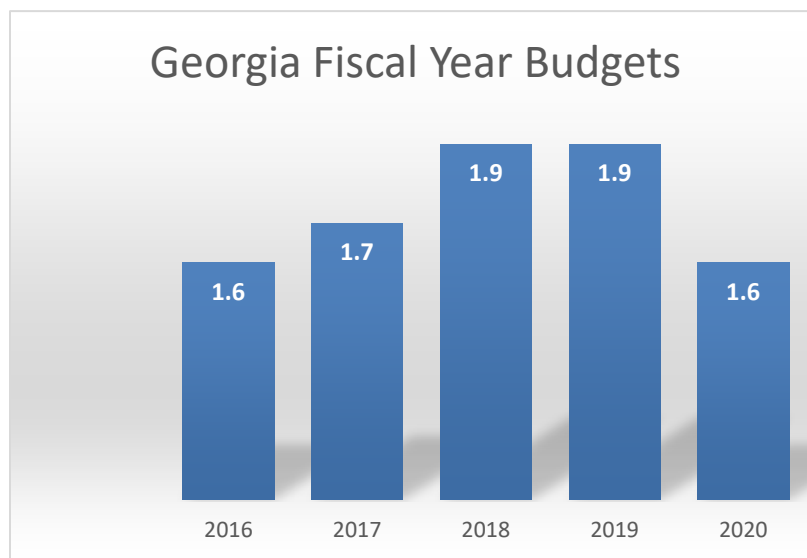


Figure 19 Federal Funding in Billions for GDOT from 2015-2020 (Source: Author)

4.3.2.3 Policy Amendment

Policy revisions to Title 49: Transportation Part 26 (ECFR, 2016) is a basis for the development of research studies as indicated in chapter 3. The most recent policy amendment is the FAST Act of 2015 (FAST, 2015) which addresses the prompt payment rule to ensure prime contractors pay subcontractors for satisfactory performance of their contracts no later than 30 days from receipt of payment by the SDOT. The law also acknowledges that discrimination and barriers continue to pose obstacles for DBEs. The data needed for the research was collected from the DOT database, SDOT databases, and questionnaire survey and interviews of certified and decertified DBEs and DBE administration spanning the course of five years from 2015-2020. The five-year span for the data of this research references the most recent DBE regulation and aligns with the research development timespan of prior research.

4.3.3 *Data Collection*

This study used one secondary method and three primary methods of data collection: website, database, survey, and interview. Data collection for determining the sampling population was obtained from multiple sources within the federal DOT and six SDOT websites including the Georgia, Florida, Maryland, New York, Illinois, and Texas Departments of Transportation abbreviated GDOT, FDOT, MDOT, NYSDOT, IDOT and TxDOT respectively. The data collected from these websites included the survey data and interview respondent data described in the following sections. The data collected by all four methods assisted in validating and clarifying the findings within the research model.

4.3.3.1 Website

Federal and state agency websites for DBE programs provided pertinent data for this research. The DOT website was used for the initial step of the data collection process to identify study participants. The DOT website offered a listing of all participatory DBE states with links to individual SDOT websites, DBE directories and DBE administrators. The UCP database within the SDOT websites for the states of Georgia, Florida, Maryland, New York, Illinois and Texas were accessed for the purpose of this study (GDOT,2016, FDOT, 2021, MDOT,2021, NYSDOT,2021, IDOT,2021).

4.3.3.2 Database

Databases from SDOTs were used to identify certified and decertified DBEs. Data on certified DBEs was obtained exclusively from SDOT UCP directories. Data on decertified DBE firms was obtained from multiple databases. Specifically, there were two databases used to collect information on the decertification of firms and the type of program withdrawal: 1) US DOT Decertification DBEs, Denials and DBE Appeal Decisions Database (DOTd, 2020) and 2) SDOT UCP Directories. Data collected from the DOT website on decertified DBEs was from the centralized repository of transportation related denied, decertified, or rejected DBEs described in the following section. The information in this database is maintained by the UCP of each state. Firms in this database are ineligible to participate in the DBE program. An analysis of the decertification of previously DBE qualified firms is shown in chapter 5.

4.3.3.3 US DOT Decertification DBEs, Denials and DBE Appeal Decisions Database (DOT Database)

SDOTs that receive federal funding for transportation projects are required to submit the decertification, denials and appeals of DBEs to the federal DOT. This information is compiled in the DOT database (Figure 20). The database contains data on the denial of DBEs based on three decision types: denials, decertification and proposed decertification. However, only decertification decisions were considered for the purpose of this research. As discussed in chapter 1, the reasons for decertification are voluntary or involuntary. Voluntary decertification is most relevant to this study as it identifies the firms that no longer meet the program requirements of no annual gross receipts over \$26.29M or personal net worth of less than \$1.32M. The database also includes the company name and owner information, state, application type, decision date, and the decertification rendering decision. The limitation to this database is that it does not identify the type of services the company provides, which resulted in multiple steps to collect and clean data from the combined DOT and SDOT databases to create the sampling for this study. Identification of the type of service provided by the DBE firms is significant because the focus of this study is only on construction service providers. The methodology for the collection of data from the GDOT UCP directory database is described below and is an example of how the data collection for this study was conducted for the Georgia, Florida, Maryland, New York, Illinois and Texas SDOTs.

Transportation.gov
U.S. Department of Transportation

Search DOT site

About DOT Our Activities Areas of Focus

Office of Civil Rights
Disadvantaged Business Enterprise
Do You Qualify as a DBE?
Ready To Apply?
DBE Laws, Policy and Guidance
DBE Program Best Practices
DBE/ACDBE Training
Reporting DBE Fraud and Abuse
DBE Program Archives
Search Decertified DBE's, Denials and DBE Appeal Decisions

Home

DOCR DBE Database for Decision Appeals

Armada Construction, Inc.

Company Owner(s): Karl Dunkley
Address: 5032 Springtree Ct.
Applicant Type: DBE

Appeals and Denials

Decision	Date	UCP State	Appealed?
Decertification	Friday, February 5, 2016	Georgia	No

Decision type

Reason for decertification

Reason: Failure to cooperate with recipient requests for information

Figure 20 DOT Database Decertification Sample (DOT, 2016)

4.3.3.4 State of Georgia UCP Directory (GUCP) – GDOT Certification Entity

The GDOT database hosts the GUCP which is a state of Georgia depository of all certified DBEs (Figure 21) for the state including those offering construction services. The database contains data on the company name and location, contact name, phone number and email address, certification entity, certification type, decertification type and business type and services based on construction North American Industry Classification System (NAICS) codes. Florida, Maryland, New York, Illinois and Texas have similar UCP databases. The GDOT database identifies several action types regarding certification compliance processes. However, for the purpose of this research only three actions relative

to decertification including administrative closure initial, removal of eligibility annual, withdrawal applied. The limitation of this database for this study is that it did not show the specific reason for decertification, which results in the need to cross reference the DOT database as mentioned in the previous section. Additionally, NAICS section 23 Construction codes were specified to limit data collection only to construction firms and firms that provide construction related services. The NAICS codes used for this research are shown in Table 9.

State of Georgia UCP Directory

Business Name: --Select Value-- County: --Select Value-- Action Type: --Select Value-- Vendor Event Type: --Select Value-- Work Class Description: --Select Value-- NAICS: contains any --Select Value-- Certification Date: Between [] [] Certification Entity: --Select Value-- Zip Code: --Select Value--

Apply Reset

TP: Due to the amount of information, the directory could take several minutes to load.

Process Time: Oct-28-2019 04:36:19 PM

Business Name	Vendor Number	Contact	Fax	Phone	Address	Address Line 2	City	State	Zip Code	Email	Certification Type	Certification Entity	NAICS
1240 PERFORMANCE, LLC	00000000016123	Ms. HEATHER GELDART		(410)825-5124	7001 OAK RIDGE RD		FALLS CHURCH	VA	22042	heather.geldart@1240performance.com	Disadvantaged Business Enterprise (DBE)	GDOT	541611 541618
180 PARKING SERVICES, LLC	00000000014088	Mr. CARLOS D. SMITH		(404)246-6722	1954 AIRPORT RD., STE. 203		ATLANTA	GA	30341	csmith@180parking.com	Disadvantaged Business Enterprise (DBE)	GDOT	81293
1ST RESOURCE SOLUTIONS, LLC	00000000013053	Mr. DARRYL SANDERS	(888)499-1527	(323)500-3134	1811 N. Dumont Drive		Marion	IN	46952	dsanders@1stresourcesolutions.com	Disadvantaged Business Enterprise (DBE)	MAR	42512
2 RIVERS TRUCKING, LLC	00000000015235	Mr. JASON RIVERS		(770)365-6231	5790 OXBOROUGH WAY		ALPHARETTA	GA	30005	jason.rivers@2riverstrucking.com	Disadvantaged Business Enterprise (DBE)	GDOT	48422
2-Swords Tactical & Defense, LLC	00000000015441	Mr. MR. MARK C. MAJOR		(770)380-9452	6961 Main Street, Ste. A		LITHONIA	GA	30058	2-swords@comcast.net	Disadvantaged Business Enterprise (DBE)	MAR	42385 42391 42395
20/20 Visionary Entertainment, LLC	00000000014765			(678)478-4164	636 North Ave. #12H		Jonesboro	GA	30236	eboni@tve.co	Disadvantaged Business Enterprise (DBE)	MAR	541611 54181
216 RESOURCES, INC.	00000000012451	Ms. BOBBIE	(888)442-	(281)809-	P O BOX 42028		HOUSTON	TX	77242	216resources@gmail.com	Disadvantaged Business	GDOT	23622

Figure 21 State of Georgia UCP Directory Sample (GDOT, 2016)

Table 9 NAICS Code 23 Construction (NAICS, 2018)

NAICS Code	Code Title
23	Construction
23622	Nonresidential Building Construction
2373	Highway, Street and Bridge Construction
23731	Highway, Street and Bridge Construction
23799	Other Heavy and Civil Engineering Construction
23891	Site Preparation Contractors
23899	All Other Specialty Trade Contractors

Data collected from the DOT database and the GDOT directory collectively identify decertified DBE construction firms. Figure 22 summarizes the steps for data collection of the decertified firms from these two resources. This process was performed for the referenced SDOTs. Identification of firms that decertified from the program were compiled in a database for each SDOT of this study and formed the decertified DBE research sampling.

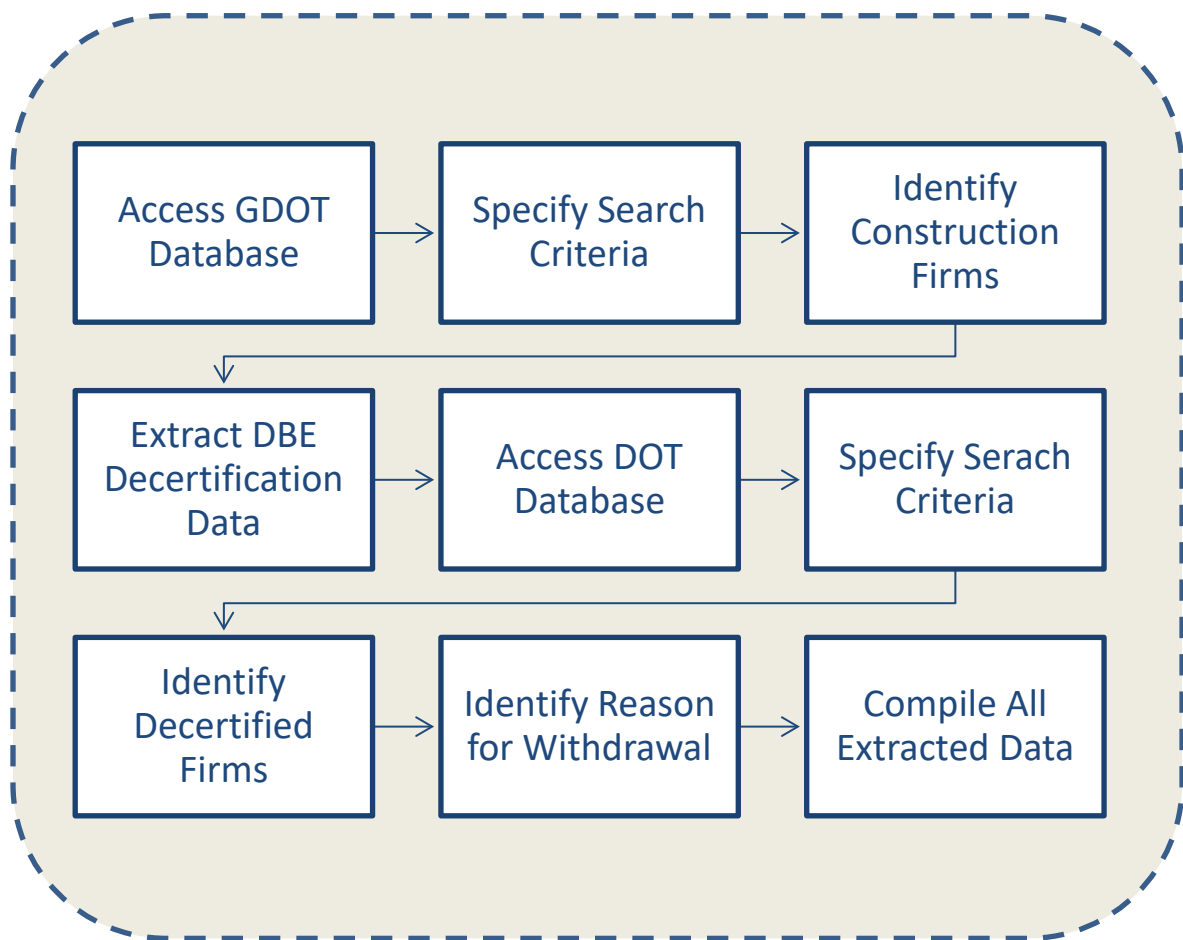


Figure 22 Data Collection Steps (Source: Author)

4.3.3.5 Survey

Two survey instruments in the form of questionnaires (Appendix A) were used as part of the data collection for this research. The survey instruments were prepared using Survey Monkey, a web-based survey software. The surveys were administered electronically through the SurveyMonkey.com online survey tool to the potential respondents using the email addresses listed in the SDOT directories. The email invitations briefly described the intent of the survey, included a participation waiver and requested participation from the potential respondents. This process was approved by the Georgia Institute of Technology Internal Review Board. A reminder survey was sent to GDOT, FDOT, MDOT, NYSDOT, IDOT and TxDOT certified and decertified DBE respondents after initial survey invitation to ensure a favorable response rate. A total of three invitations were sent to decertified MDOT DBEs due to a low response rate.

Certified DBEs and decertified DBEs were the survey recipients. Specifically, construction company owners or executive leadership were the intended certified and decertified DBE respondents. A summary of the data collection for this study is shown in Table 10. Invitations were emailed to 10,073 total certified DBE potential respondents and 10,586 total decertified DBE firms from each SDOT collectively. Survey participant company contact information, certification type, and construction service type for certified and decertified DBEs were obtained from the UCP Directory databases of GDOT, FDOT, MDOT, NYSDOT, IDOT and TxDOT but is not identifiable in this study. The contact information and title of the DBE administrators were also obtained from these databases and the DOT website. Evaluation of the results support the hypothesis of this research and is described in the following chapter.

Table 10 Survey Questionnaire Data Collection Summary

SDOT	Georgia	Florida	Maryland	New York	Illinois	Texas	Total
Certified DBE							
Invitations	736	413	1677	572	646	6029	10,073
Responses	60	45	129	48	57	393	732
Response Rate	8.2%	10.9%	7.7%	8.4%	8.8%	6.5%	7.3%
Bounced	2 (0.3%)	0 (0%)	1 (0.1%)	4 (0.7%)	4 (0.6%)	201 (3.3%)	212
Opted Out	5 (0.7%)	4 (1.0%)	9 (0.5%)	8 (1.4%)	3 (0.5%)	60 (1.0%)	89
Decertified DBE							
Invitations	463	491	52	2609	729	6242	10,586
Responses	10	5	1	12	7	39	89
Response Rate	2.2%	1.0%	1.9%	.46%	.96%	.62%	.84%
Bounced	13 (2.8%)	29 (5.9%)	4 (7.7%)	174 (6.7%)	34 (4.7%)	585 (9.4%)	852
Opted Out	11 (2.4%)	19 (3.9%)	0 (0%)	74 (2.8%)	13 (1.8%)	218 (3.5%)	335

4.3.3.6 Interviews

Phone and virtual interviews were conducted with DBE program administrators from the GDOT, FDOT, MDOT, NYSDOT, IDOT and TxDOT. The identification information, email addresses, mailing addresses, and phone numbers of the administrators were obtained from the DOT and SDOT websites. Interviews of the program administrators responsible for managing the referenced SDOT DBE programs provided evidence for the research question: is the DBE program meeting the objective of developing firms to compete in the construction marketplace? The interview questions

were structured in a survey format to reduce variance in data collection and to provide relevant insight from the program administrators to the research hypotheses (Appendix A).

4.3.4 Data Cleaning and Management

The data were cleaned to create samples of certified DBEs and decertified DBEs with NAICS Code 23 that apply specifically to this study. Cleaning the data required several steps to eliminate duplicates and incomplete information for certified and decertified DBEs. Data for the certified firms was extracted from one data source, the UCP Directory for each SDOT, and the elimination of erroneous data was performed within that source. However, data for the decertified firms from the DOT database was combined with data from the SDOT UCP databases because of the limitations with both that were previously mentioned. Data extracted for the decertified firms from the DOT website was combined with data from the SDOT UCP websites with the appropriate NAICS codes to identify construction firms. A filter was applied to the firm information columns in the database to eliminate duplicates resulting in the sampling of decertified firms.

A database was created to manage the data collection for the variables of interest. The database was organized by SDOTs with a folder for each. The SDOT folders contained three primary folders labelled Certified DBEs, Decertified DBEs and Program Administrator. The certified DBE database, decertified DBE database and the interview notes from the program administrators were scanned and filed into the appropriate SDOT folder. The notes were labelled DBE Administrator Questionnaire and included the SDOT identifier for each state. The data cleaning resulted in 10,073 certified DBEs firms, 10,586

decertified DBE firms, and interview notes for the GDOT, FDOT, MDOT, NYSDOT, IDOT and TxDOT data sets. The cleaned data is used for the data analysis of this study.

CHAPTER 5. DATA ANALYSIS AND RESULTS

5.1 Introduction

The purpose of this research is to determine if the DBE program assists in the preparation of firms to compete successfully in the open market, focusing on certified and decertified DBE firms and the factors that contribute or hinder voluntary decertification. Affirmative action programs like the DBE program are important to the construction industry, however, our understanding of their effect is limited (Marion, 2011). The impact of government contracting makes understanding the effects of the DBE program significant to the construction industry (Marion, 2011). There have been issues surrounding the DBE program since its inception (La Noue, 2008). Some contend that the program should be restructured to provide for the development of DBEs into qualified independent (Beliveau et al., 1991). One objective of the program is to “assist the development of firms that can compete successfully in the marketplace outside the DBE program” (DOT, 2016). This objective is the unit of analysis for the research. The study aims to evaluate if this objective is being met by observation of the development of its participants and the perspective of the program administrators. The certified DBEs, decertified DBEs and program administrators are observed. A mixed methodology approach was used to evaluate the research findings and propose recommendations based on key questions for more understanding of the DBE program and its effect on certified and decertified DBEs and administrators. Similar variables exist for the participants. The mixed method research design “forces the methods to share the same research questions, to collect complementary data, and to conduct counterpart analysis” (Yin, 2006). The primary investigation of this

study is on certified and decertified DBEs which relies on statistical analysis. The analytical outline is shown in Figure 23. It shows the basis for the models described in the data analysis and the relationships of the variables for certified and decertified firms and the program administrators. For DBE firms enrolled in the program (certified) and those no longer eligible (decertified), a quantitative methodology for this research was selected to determine the significance of responses between the two groups. This is shown in analyses 1 and 2. The surveys of the program administrators based on results of individual interviews were analyzed and interpreted. This is shown in analysis 3. Binary logistic regression (BLR) and interview analysis were used to draw conclusions.

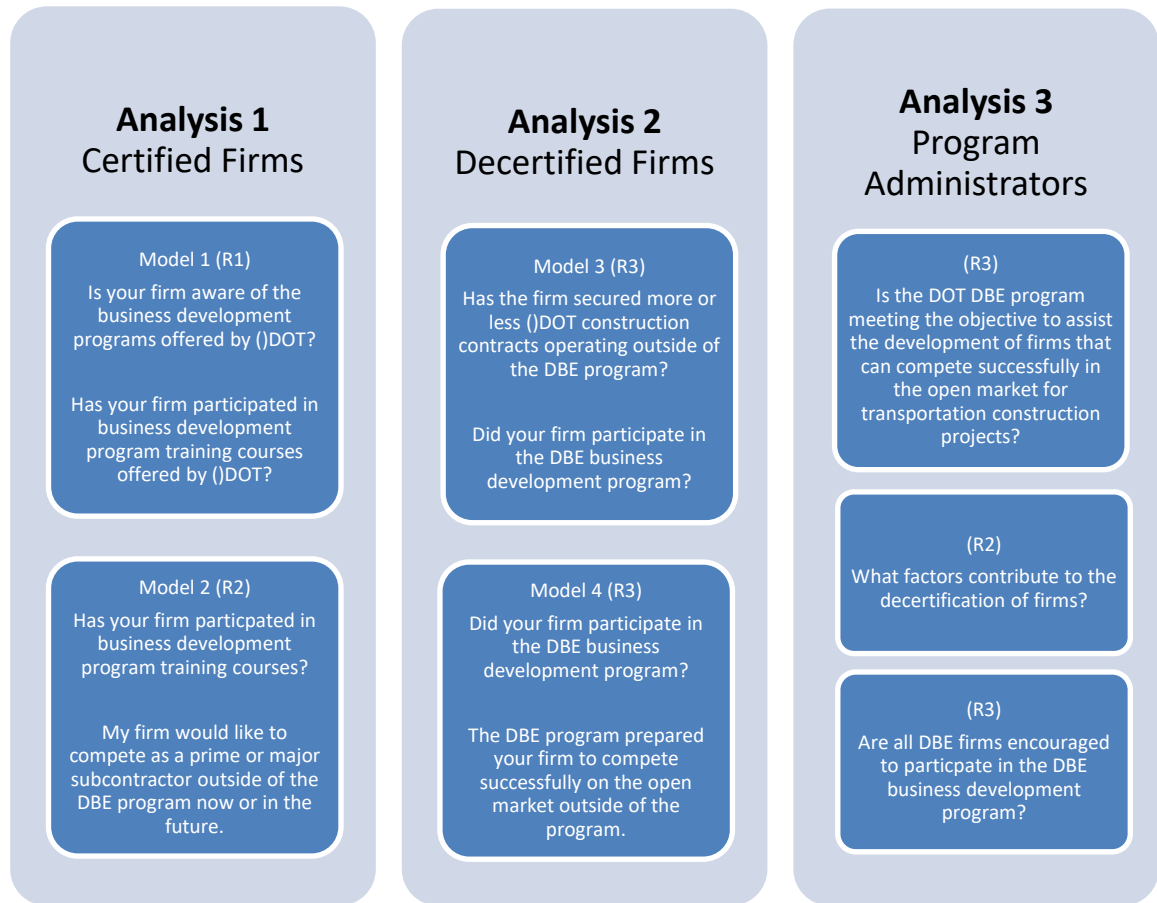


Figure 23 Analytical Outline (Source: Author)

5.1.1 Binary Logistic Regression

Binary logistic regression (BLR) was the statistical method used for drawing conclusions as used in prior research on the study of DBEs in transportation (Shrestha et al., 2016). The SPSS statistical tool was used to perform the qualitative analysis on the collected data. “Logistic regression is one of the statistical methods for modeling the

dependency of a binary response variable on one or more explanatory variables; it analyzes a set of data consisting of independent variables or predictors that determine the outcome. The coefficients generated by the logistic regression predict a logit transformation of the probability of presence of relationship characteristics.” (Shrestha et al., 2016). This uses the following equation (Shrestha et al., 2016):

$$\text{Logit}(p) = a_0 + a_1X_1 + a_2X_2 + a_3X_3 + \dots + a_kX_k$$

Where p = probability of the presence of relationship characteristics, and the logit transformation is the logged odds, which can be calculated using the following equation (Shrestha et al., 2016):

$$\text{Odds} = \frac{p}{(1-p)} = \frac{\text{probability of presence of characteristic}}{\text{probability of absence of characteristic}}$$

To determine the logit (p), the following is used (Shrestha et al., 2016):

$$\text{Logit}(p) = \ln\left(\frac{p}{1-p}\right)$$

The estimation in the logic regression chooses the parameters that maximize the likelihood of observing sample values (Shrestha et al., 2016). The results of this logistic regression can be used to classify firms with respect to what decisions they likely will make (MedCalc, 2013).

5.2 Descriptive Findings

The descriptive statistics of this study show summaries about the samples and measures of all SDOTs and individually by each state. The research question evolved into

key questions relative to the hypothesis that identified the relationship between variables. The importance of the variables is that they help in operationalization of concepts for the data set. The descriptive statistics are summarized in simple bar counts and cluster bar counts of the variables by SDOT in Figure 24 - Figure 37 and Table 11 - Table 24 at the end of this section.

As stated in chapter 1, “The DBEs Title 49: Transportation Part 26 states recipients must have a business development program to assist firms in the ability to compete in the marketplace outside the program and may establish a “mentor-protégé” program (ECFR, 2016). Federal assistance SDOT recipients have implemented BDPs to comply with regulatory requirements.” All SDOT cases in this study have BDPs. The programs are typically administered by third-party supportive services. The GDOT DBE has several programs to support the business development of DBEs including the Major Mobility Investment Program, Support Services, and the SSFP Business Help Center (GDOT, 2016). The contact information for each program is publicly available on the GDOT website (GDOT, 2016). The FDOT, MDOT, NYSDOT, IDOT and TxDOT have BDPs with similar supportive services and program access available on their websites. The existence of such programs is compliant with the Title 49 federal regulation. However, participation in the BDPs is not a requirement for certified DBEs. Therefore, participation in BDPs is optional for DBEs. Since participation is optional, the experience of certified DBEs with business develop opportunities varies. The descriptive statistics of this study considers variables as shown in the response options. Bar charts are used to compare the variables for the certified and decertified firms. The lists of variables, number of certified

DBE respondents, coding description, sum, mean and standard deviation are shown in the tables.

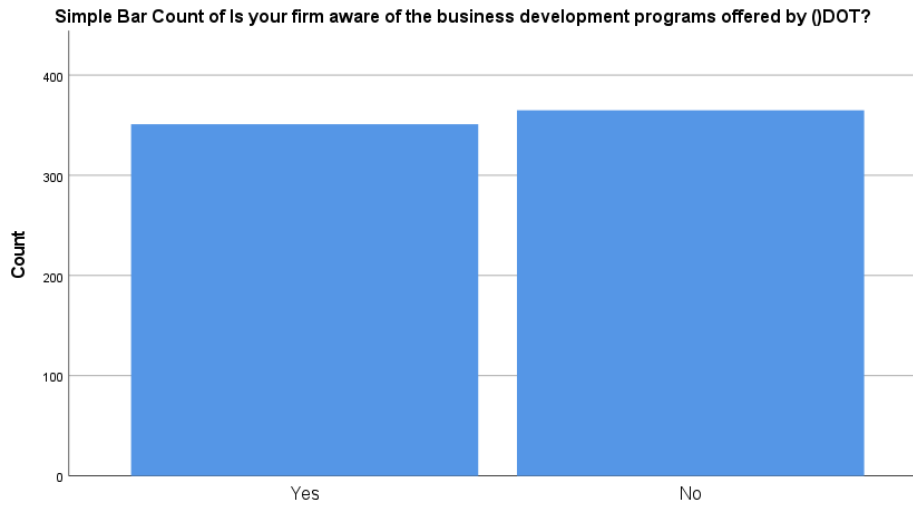


Figure 24 Awareness of Business Development Programs (Source: Author)

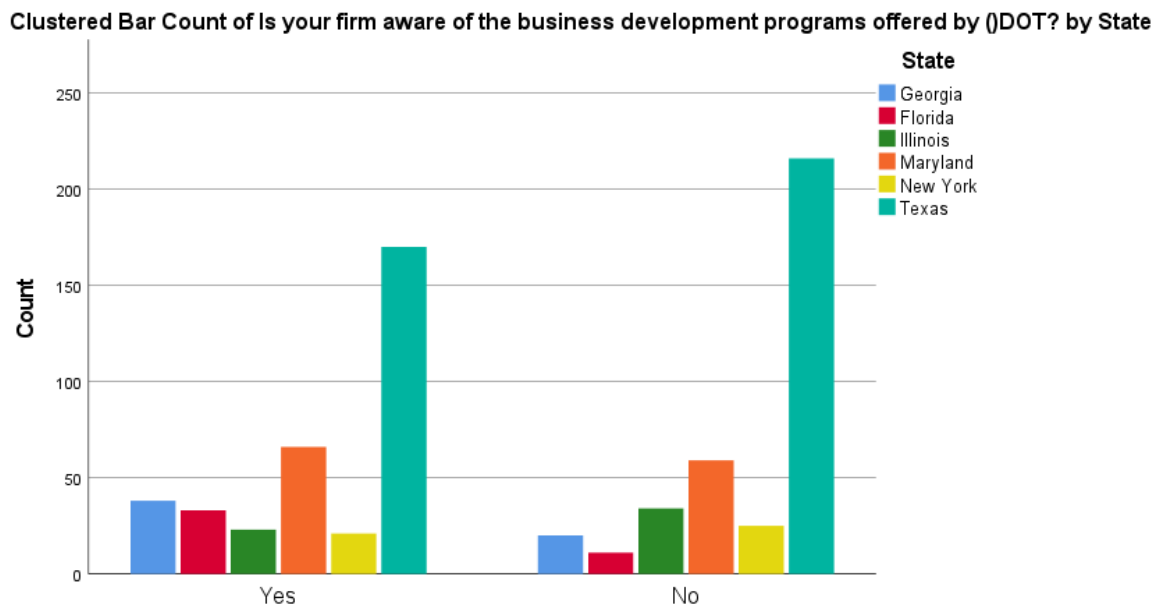


Figure 25 Awareness of Business Development Programs by State (Source: Author)

Simple Bar Count of How was your firm made aware of the DBE business development training opportunities?

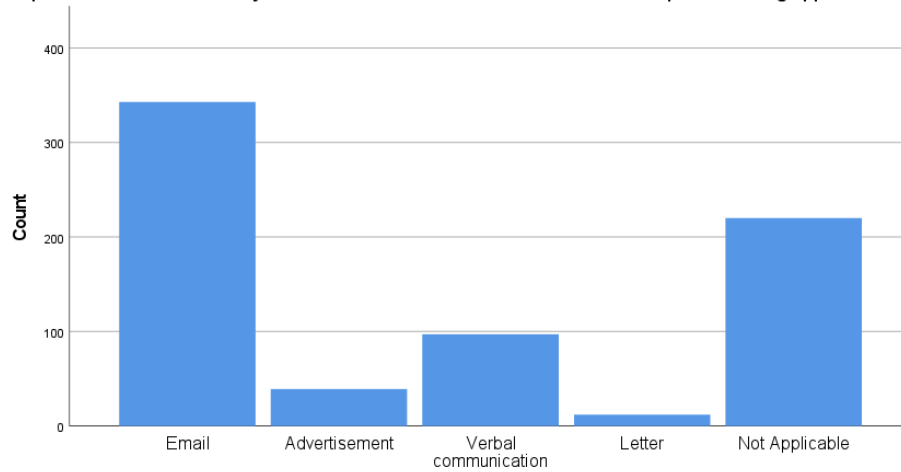


Figure 26 How Was Firm Made Aware of Business Development Opportunities
(Source: Author)

Clustered Bar Count of How was your firm made aware of the DBE business development training opportunities? by State

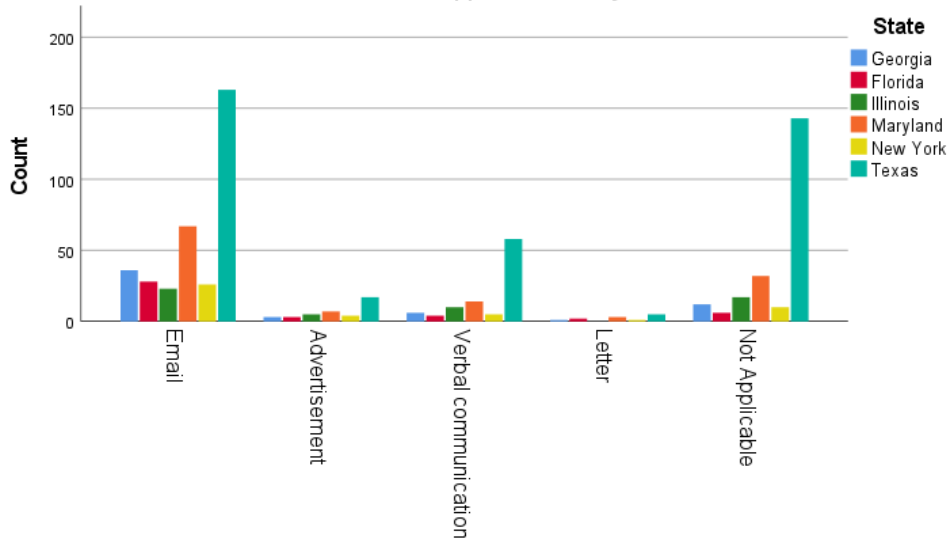


Figure 27 How Firm Made Aware of Business Development Opportunities by State
(Source: Author)

Simple Bar Count of Has your firm participated in business development program training courses offered by () DOT?

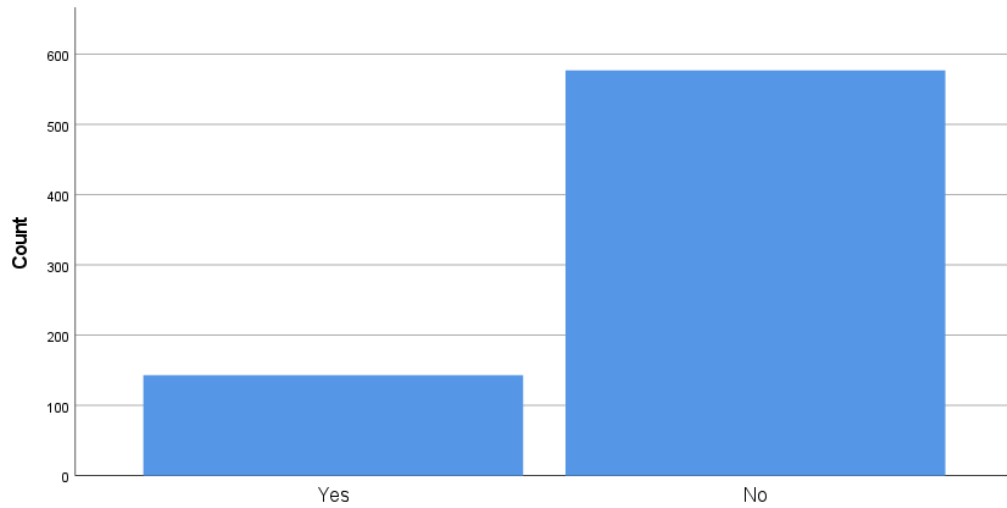


Figure 28 Has Firm Participated in DBE Business Development Training
(Source: Author)

Clustered Bar Count of Has your firm participated in business development program training courses offered by () DOT? by State

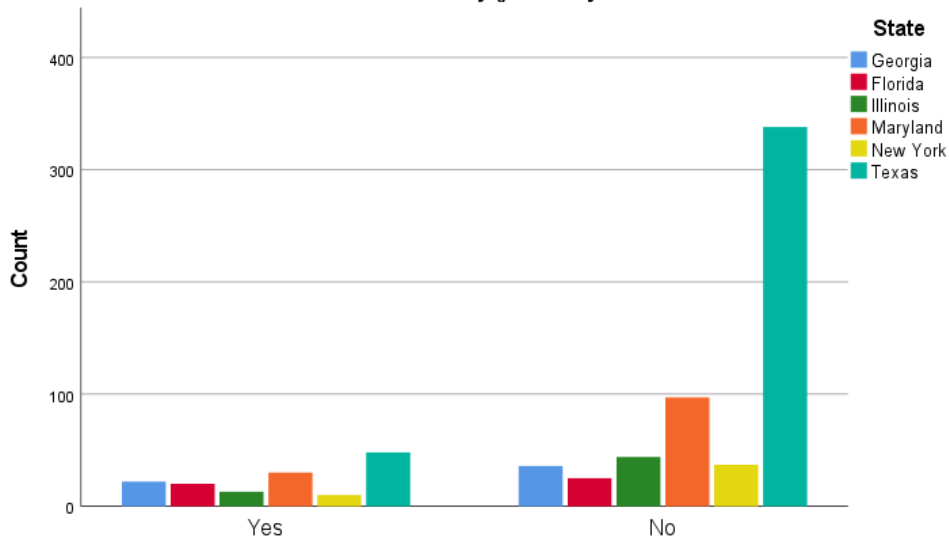


Figure 29 Has Firm Participated in DBE Business Development Training by State
(Source: Author)

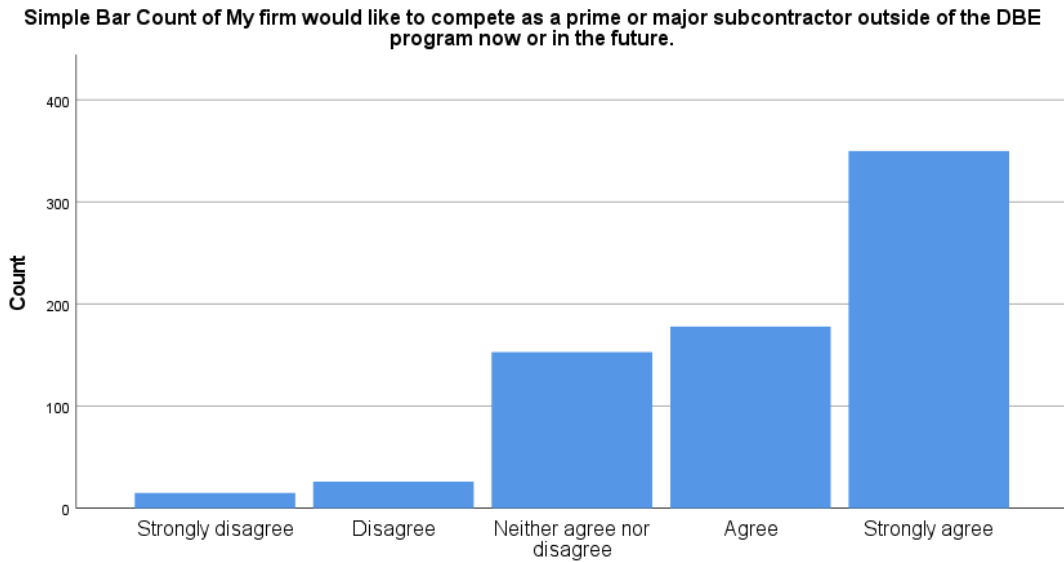


Figure 30 Firm Wants to Compete as Prime/Major Sub in Open Market (Source: Author)

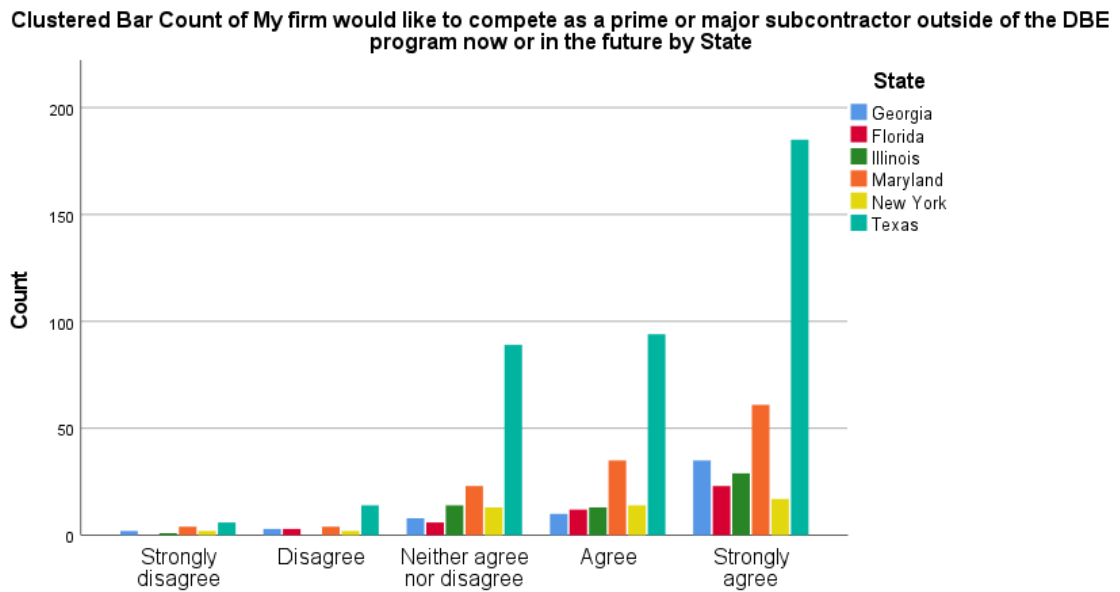


Figure 31 Firm Wants to Compete as Prime/Major Sub in Open Market by State (Source: Author)

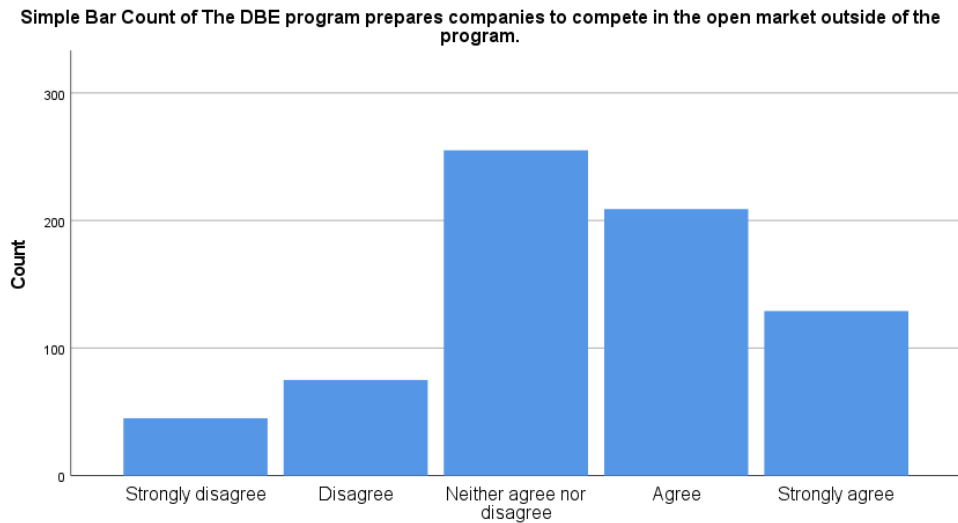


Figure 32 DBE Program Prepares Firm to Compete in Open Market
(Source: Author)

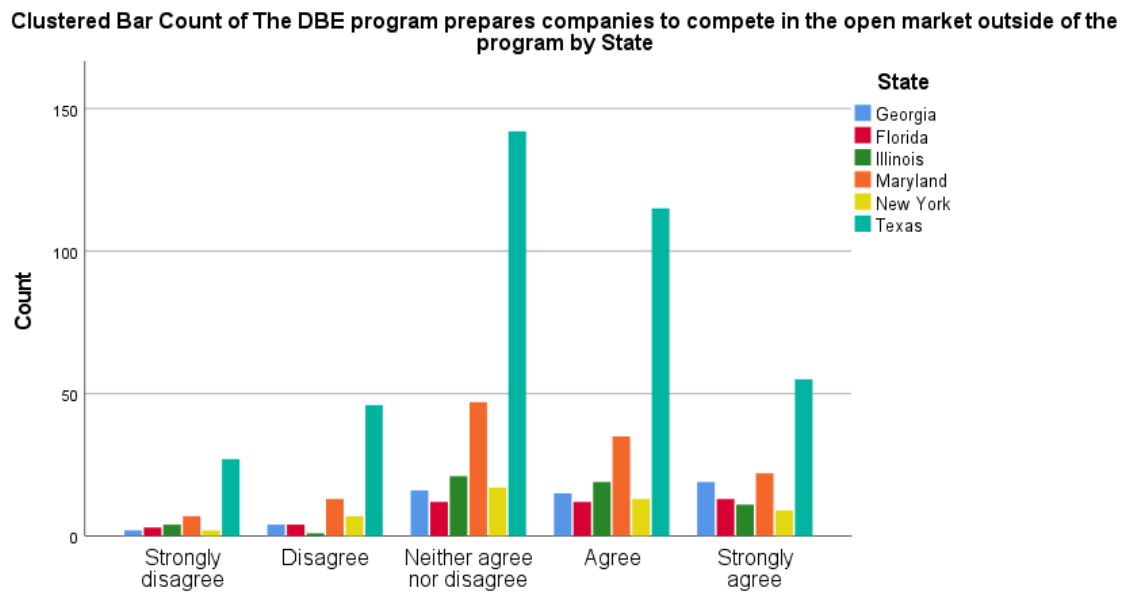


Figure 33 DBE Program Prepares Firm to Compete in Open Market by State
(Source: Author)

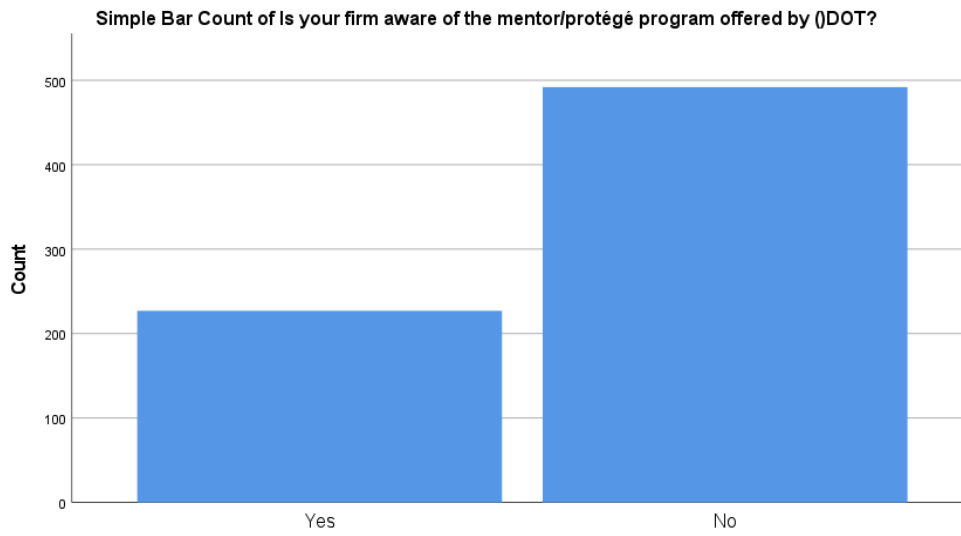


Figure 34 Is Firm Aware of Mentor/Protégé Program (Source: Author)

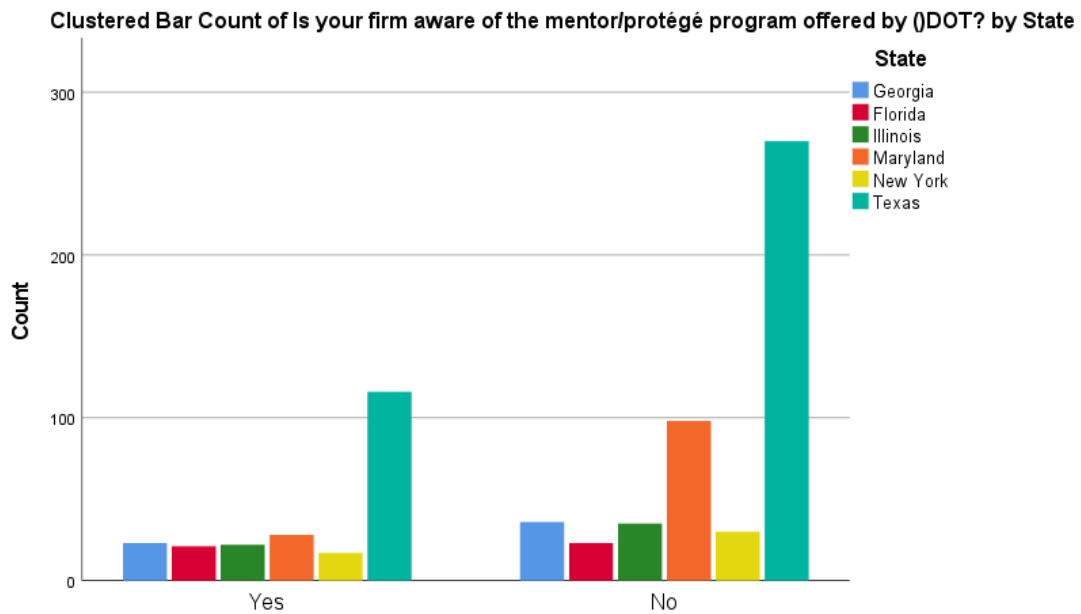


Figure 35 Is Firm Aware of Mentor/Protégé Program by State (Source: Author)

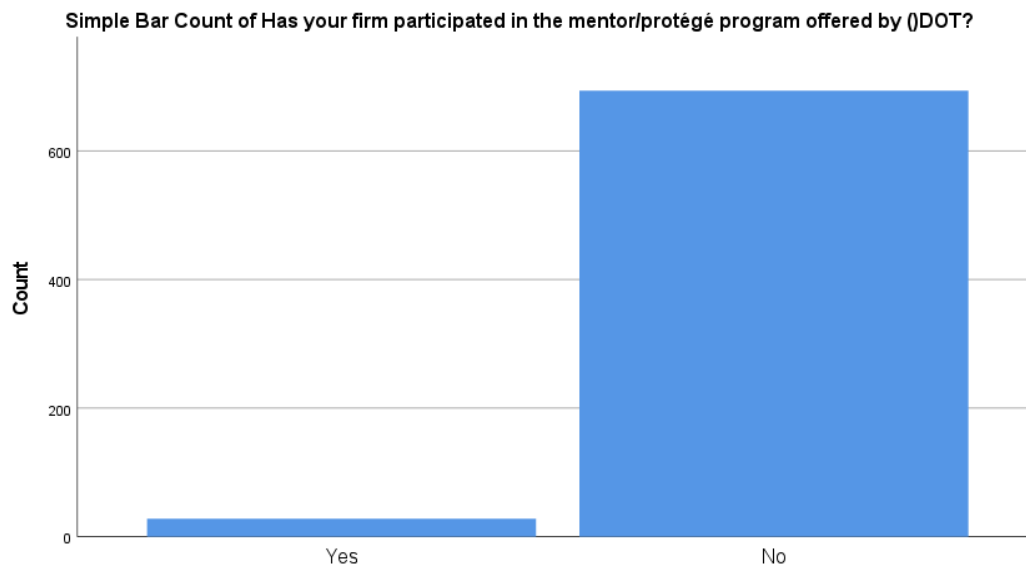


Figure 36 Has Firm Participated in Mentor/Protégé Program (Source: Author)

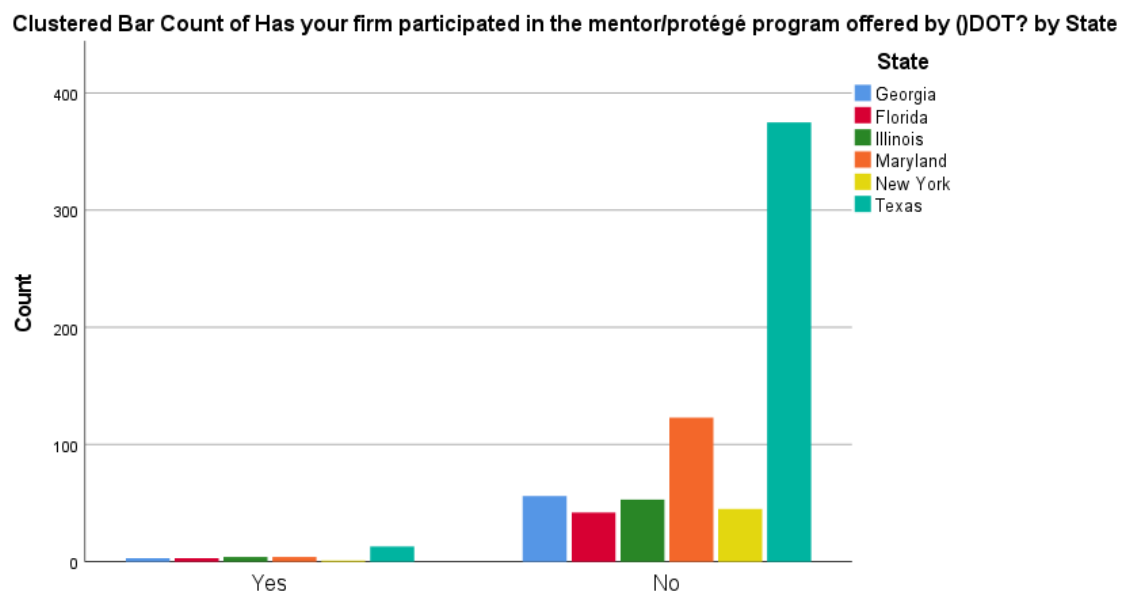


Figure 37 Has Firm Participated in Mentor/Protégé Program by State (Source: Author)

Table 11 Descriptives All SDOTs – Certified DBEs

Descriptive Statistics						
Variables	N	Minimum	Maximum	Sum	Mean	Std. Deviation
My firm would like to compete as a prime or major subcontractor outside of the DBE program now or in the future.	722	1	5	2988	4.14	1.005
The DBE program prepares companies to compete in the open market outside of the program.	713	1	5	2441	3.42	1.094
Is your firm aware of the business development programs offered by ()DOT?	716	1	2	1081	1.51	.500
How was your firm made aware of the DBE business development training opportunities?	711	1	5	1860	2.62	1.760
Has your firm participated in business development program training courses offered by ()DOT?	720	1	2	1297	1.80	.399
Is your firm aware of the mentor/protégé program offered by ()DOT?	719	1	2	1211	1.68	.465
Has your firm participated in the mentor/protégé program offered by ()DOT?	722	1	2	1416	1.96	.193
The current DBE program model makes it difficult to graduate from the DBE program.	716	1	6	2566	3.58	1.341
Which factors are hindering your firm's growth and development? Select all that apply. (Financing)	728	0	1	269	.37	.483
Which factors are hindering your firm's growth and development? Select all that apply. (Bonding)	728	0	1	153	.21	.408
Which factors are hindering your firm's growth and development? Select all that apply. (Competition)	728	0	1	199	.27	.446
Which factors are hindering your firm's growth and development? Select all that apply. (Education and Training)	728	0	1	90	.12	.329
Which factors are hindering your firm's growth and development? Select all that apply. (Qualified employees)	728	0	1	155	.21	.410
Which factors are hindering your firm's growth and development? Select all that apply. (Technology)	728	0	1	49	.07	.251

Table 11 (continued)

Which factors are hindering your firm's growth and development? Select all that apply. (Firm Size)	728	0	1	149	.20	.404
Which factors are hindering your firm's growth and development? Select all that apply. (Other)	728	0	1	173	.24	.426
Which factors are hindering your firm's growth and development? Select all that apply. (NA)	728	0	1	94	.13	.336
Valid N (listwise)	676					

Table 12 Descriptive GDOT – Certified DBEs

Descriptive Statistics						
	N	Minimum	Maximum	Sum	Mean	Std. Deviation
My firm would like to compete as a prime or major subcontractor outside of the DBE program now or in the future.	58	1	5	247	4.26	1.101
The DBE program prepares companies to compete in the open market outside of the program.	56	1	5	213	3.80	1.102
Is your firm aware of the business development programs offered by ()DOT?	58	1	2	78	1.34	.479
How was your firm made aware of the DBE business development training opportunities?	58	1	5	124	2.14	1.638
Has your firm participated in business development program training courses offered by ()DOT?	58	1	2	94	1.62	.489
Is your firm aware of the mentor/protégé program offered by ()DOT?	59	1	2	95	1.61	.492
Has your firm participated in the mentor/protégé program offered by ()DOT?	59	1	2	115	1.95	.222
The current DBE program model makes it difficult to graduate from the DBE program.	58	1	6	211	3.64	1.385
Which factors are hindering your firm's growth and development? Select all that apply. (Financing)	59	0	1	23	.39	.492
Which factors are hindering your firm's growth and development? Select all that apply. (Bonding)	59	0	1	16	.27	.448
Which factors are hindering your firm's growth and development? Select all that apply. (Competition)	59	0	1	19	.32	.471
Which factors are hindering your firm's growth and development? Select all that apply. (Education and Training)	59	0	1	4	.07	.254
Which factors are hindering your firm's growth and development? Select all that apply. (Qualified employees)	59	0	1	14	.24	.429
Which factors are hindering your firm's growth and development? Select all that apply. (Technology)	59	0	1	1	.02	.130

Table 12 (continued)

Which factors are hindering your firm's growth and development? Select all that apply. (Firm Size)	59	0	1	13	.22	.418
Which factors are hindering your firm's growth and development? Select all that apply. (Other)	59	0	1	11	.19	.393
Which factors are hindering your firm's growth and development? Select all that apply. (NA)	59	0	1	8	.14	.345
Valid N (listwise)	54					

Table 13 Descriptives FDOT – Certified DBEs

Descriptive Statistics						
	N	Minimum	Maximum	Sum	Mean	Std. Deviation
My firm would like to compete as a prime or major subcontractor outside of the DBE program now or in the future.	44	2	5	187	4.25	.943
The DBE program prepares companies to compete in the open market outside of the program.	44	1	5	160	3.64	1.203
Is your firm aware of the business development programs offered by ()DOT?	44	1	2	55	1.25	.438
How was your firm made aware of the DBE business development training opportunities?	43	1	5	84	1.95	1.495
Has your firm participated in business development program training courses offered by ()DOT?	45	1	2	70	1.56	.503
Is your firm aware of the mentor/protégé program offered by ()DOT?	44	1	2	67	1.52	.505
Has your firm participated in the mentor/protégé program offered by ()DOT?	45	1	2	87	1.93	.252
The current DBE program model makes it difficult to graduate from the DBE program.	44	1	5	134	3.05	.806
Which factors are hindering your firm's growth and development? Select all that apply. (Financing)	45	0	1	17	.38	.490
Which factors are hindering your firm's growth and development? Select all that apply. (Bonding)	45	0	1	11	.24	.435
Which factors are hindering your firm's growth and development? Select all that apply. (Competition)	45	0	1	8	.18	.387
Which factors are hindering your firm's growth and development? Select all that apply. (Education and Training)	45	0	1	5	.11	.318
Which factors are hindering your firm's growth and development? Select all that apply. (Qualified employees)	45	0	1	11	.24	.435
Which factors are hindering your firm's growth and development? Select all that apply. (Technology)	45	0	0	0	.00	.000

Table 13 (continued)

Which factors are hindering your firm's growth and development? Select all that apply. (Firm Size)	45	0	1	6	.13	.344
Which factors are hindering your firm's growth and development? Select all that apply. (Other)	45	0	1	11	.24	.435
Which factors are hindering your firm's growth and development? Select all that apply. (NA)	45	0	1	11	.24	.435
Valid N (listwise)	41					

Table 14 Descriptives IDOT – Certified DBEs

Descriptive Statistics						
	N	Minimum	Maximum	Sum	Mean	Std. Deviation
My firm would like to compete as a prime or major subcontractor outside of the DBE program now or in the future.	57	1	5	240	4.21	.940
The DBE program prepares companies to compete in the open market outside of the program.	56	1	5	200	3.57	1.059
Is your firm aware of the business development programs offered by ()DOT?	57	1	2	91	1.60	.495
How was your firm made aware of the DBE business development training opportunities?	55	1	5	148	2.69	1.720
Has your firm participated in business development program training courses offered by ()DOT?	57	1	2	101	1.77	.423
Is your firm aware of the mentor/protégé program offered by ()DOT?	57	1	2	92	1.61	.491
Has your firm participated in the mentor/protégé program offered by ()DOT?	57	1	2	110	1.93	.258
The current DBE program model makes it difficult to graduate from the DBE program.	57	1	6	193	3.39	1.236
Which factors are hindering your firm's growth and development? Select all that apply. (Financing)	57	0	1	26	.46	.503
Which factors are hindering your firm's growth and development? Select all that apply. (Bonding)	57	0	1	23	.40	.495
Which factors are hindering your firm's growth and development? Select all that apply. (Competition)	57	0	1	20	.35	.481
Which factors are hindering your firm's growth and development? Select all that apply. (Education and Training)	57	0	1	10	.18	.384
Which factors are hindering your firm's growth and development? Select all that apply. (Qualified employees)	57	0	1	22	.39	.491
Which factors are hindering your firm's growth and development? Select all that apply. (Technology)	57	0	1	9	.16	.368

Table 14 (continued)

Which factors are hindering your firm's growth and development? Select all that apply. (Firm Size)	57	0	1	16	.28	.453
Which factors are hindering your firm's growth and development? Select all that apply. (Other)	57	0	1	14	.25	.434
Which factors are hindering your firm's growth and development? Select all that apply. (NA)	57	0	1	6	.11	.310
Valid N (listwise)	54					

Table 15 Descriptives MDOT – Certified DBEs

Descriptive Statistics						
	N	Minimum	Maximum	Sum	Mean	Std. Deviation
My firm would like to compete as a prime or major subcontractor outside of the DBE program now or in the future.	127	1	5	526	4.14	1.029
The DBE program prepares companies to compete in the open market outside of the program.	124	1	5	424	3.42	1.075
Is your firm aware of the business development programs offered by ()DOT?	125	1	2	184	1.47	.501
How was your firm made aware of the DBE business development training opportunities?	123	1	5	295	2.40	1.721
Has your firm participated in business development program training courses offered by ()DOT?	127	1	2	224	1.76	.426
Is your firm aware of the mentor/protégé program offered by ()DOT?	126	1	2	224	1.78	.417
Has your firm participated in the mentor/protégé program offered by ()DOT?	127	1	2	250	1.97	.175
The current DBE program model makes it difficult to graduate from the DBE program.	125	1	6	434	3.47	1.434
Which factors are hindering your firm's growth and development? Select all that apply. (Financing)	129	0	1	49	.38	.487
Which factors are hindering your firm's growth and development? Select all that apply. (Bonding)	129	0	1	20	.16	.363
Which factors are hindering your firm's growth and development? Select all that apply. (Competition)	129	0	1	43	.33	.473
Which factors are hindering your firm's growth and development? Select all that apply. (Education and Training)	129	0	1	12	.09	.292
Which factors are hindering your firm's growth and development? Select all that apply. (Qualified employees)	129	0	1	24	.19	.391
Which factors are hindering your firm's growth and development? Select all that apply. (Technology)	129	0	1	9	.07	.256

Table 15 (continued)

Which factors are hindering your firm's growth and development? Select all that apply. (Firm Size)	129	0	1	26	.20	.403
Which factors are hindering your firm's growth and development? Select all that apply. (Other)	129	0	1	34	.26	.442
Which factors are hindering your firm's growth and development? Select all that apply. (NA)	129	0	1	15	.12	.322
Valid N (listwise)	115					

Table 16 Descriptives NYSDOT – Certified DBEs

Descriptive Statistics						
	N	Minimum	Maximum	Sum	Mean	Std. Deviation
My firm would like to compete as a prime or major subcontractor outside of the DBE program now or in the future.	48	1	5	186	3.87	1.084
The DBE program prepares companies to compete in the open market outside of the program.	48	1	5	164	3.42	1.088
Is your firm aware of the business development programs offered by ()DOT?	46	1	2	71	1.54	.504
How was your firm made aware of the DBE business development training opportunities?	46	1	5	103	2.24	1.649
Has your firm participated in business development program training courses offered by ()DOT?	47	1	2	84	1.79	.414
Is your firm aware of the mentor/protégé program offered by ()DOT?	47	1	2	77	1.64	.486
Has your firm participated in the mentor/protégé program offered by ()DOT?	46	1	2	91	1.98	.147
The current DBE program model makes it difficult to graduate from the DBE program.	46	2	6	186	4.04	1.333
Which factors are hindering your firm's growth and development? Select all that apply. (Financing)	48	0	1	17	.35	.483
Which factors are hindering your firm's growth and development? Select all that apply. (Bonding)	48	0	1	12	.25	.438
Which factors are hindering your firm's growth and development? Select all that apply. (Competition)	48	0	1	8	.17	.377
Which factors are hindering your firm's growth and development? Select all that apply. (Education and Training)	48	0	1	5	.10	.309
Which factors are hindering your firm's growth and development? Select all that apply. (Qualified employees)	48	0	1	8	.17	.377
Which factors are hindering your firm's growth and development? Select all that apply. (Technology)	48	0	1	3	.06	.245

Table 16 (continued)

Which factors are hindering your firm's growth and development? Select all that apply. (Firm Size)	48	0	1	10	.21	.410
Which factors are hindering your firm's growth and development? Select all that apply. (Other)	48	0	1	12	.25	.438
Which factors are hindering your firm's growth and development? Select all that apply. (NA)	48	0	1	5	.10	.309
Valid N (listwise)	42					

Table 17 Descriptives TxDOT – Certified DBEs

Descriptive Statistics						
	N	Minimum	Maximum	Sum	Mean	Std. Deviation
My firm would like to compete as a prime or major subcontractor outside of the DBE program now or in the future.	388	1	5	1602	4.13	.988
The DBE program prepares companies to compete in the open market outside of the program.	385	1	5	1280	3.32	1.081
Is your firm aware of the business development programs offered by ()DOT?	386	1	2	602	1.56	.497
How was your firm made aware of the DBE business development training opportunities?	386	1	5	1106	2.87	1.794
Has your firm participated in business development program training courses offered by ()DOT?	386	1	2	724	1.88	.330
Is your firm aware of the mentor/protégé program offered by ()DOT?	386	1	2	656	1.70	.459
Has your firm participated in the mentor/protégé program offered by ()DOT?	388	1	2	763	1.97	.180
The current DBE program model makes it difficult to graduate from the DBE program.	386	1	6	1408	3.65	1.348
Which factors are hindering your firm's growth and development? Select all that apply. (Financing)	390	0	1	137	.35	.478
Which factors are hindering your firm's growth and development? Select all that apply. (Bonding)	390	0	1	71	.18	.386
Which factors are hindering your firm's growth and development? Select all that apply. (Competition)	390	0	1	101	.26	.439
Which factors are hindering your firm's growth and development? Select all that apply. (Education and Training)	390	0	1	54	.14	.346
Which factors are hindering your firm's growth and development? Select all that apply. (Qualified employees)	390	0	1	76	.19	.397
Which factors are hindering your firm's growth and development? Select all that apply. (Technology)	390	0	1	27	.07	.254

Table 17 (continued)

Which factors are hindering your firm's growth and development? Select all that apply. (Firm Size)	390	0	1	78	.20	.401
Which factors are hindering your firm's growth and development? Select all that apply. (Other)	390	0	1	91	.23	.423
Which factors are hindering your firm's growth and development? Select all that apply. (NA)	390	0	1	49	.13	.332
Valid N (listwise)	370					

Table 18 Descriptives All SDOTs – Decertified DBEs

Descriptive Statistics						
	N	Minimum	Maximum	Sum	Mean	Std. Deviation
Why did your firm decertify from the DBE program?	54	1	4	75	1.39	.787
How long was your firm a certified DBE?	59	1	5	126	2.14	1.152
Did your firm participate in the ()DOT business development program (BDP)?	59	1	2	99	1.68	.471
Did your firm participate in the ()DOT mentor/protégé program?	59	1	2	110	1.86	.345
Has your firm received any of the following advantages of the DBE program?	31	1	6	111	3.58	1.336
Has your firm secured more or less ()DOT construction contracts competing in the open market outside of the program?	51	0	1	10	.20	.401
How was your firm made aware of the DBE business development training opportunities?	59	1	6	175	2.97	2.213
The DBE program prepared your firm to compete successfully on the open market outside of the program.	59	1	6	161	2.73	1.808
The DBE program model creates DBE dependency on the program.	59	1	6	180	3.05	1.804
DBE firms are encouraged by ()DOT to grow and development in order to graduate from the program.	60	1	6	169	2.82	1.589
What factors contribute to the decertification of firms from the DBE program? Select all that apply.	53	1	6	248	4.68	1.795
Which, if any, of the following factors hindered the growth and development of your firm as a certified DBE in the DBE program? Select all that apply.	59	1	8	336	5.69	2.458
Valid N (listwise)	26					

Table 19 Descriptives GDOT – Decertified DBEs

Descriptive Statistics						
	N	Minimum	Maximum	Sum	Mean	Std. Deviation
Why did your firm decertify from the DBE program?	10	1	2	12	1.20	.422
How long was your firm a certified DBE?	10	1	4	20	2.00	1.054
Did your firm participate in the ()DOT business development program (BDP)?	10	1	2	17	1.70	.483
Did your firm participate in the ()DOT mentor/protégé program?	10	1	2	17	1.70	.483
Has your firm received any of the following advantages of the DBE program?	4	1	4	10	2.50	1.291
Has your firm secured more or less ()DOT construction contracts competing in the open market outside of the program?	8	0	0	0	.00	.000
How was your firm made aware of the DBE business development training opportunities?	10	1	6	16	1.60	1.578
The DBE program prepared your firm to compete successfully on the open market outside of the program.	10	1	6	28	2.80	1.476
The DBE program model creates DBE dependency on the program.	9	1	5	26	2.89	1.167
DBE firms are encouraged by ()DOT to grow and development in order to graduate from the program.	10	1	5	28	2.80	1.135
What factors contribute to the decertification of firms from the DBE program? Select all that apply.	8	1	6	28	3.50	2.138
Which, if any, of the following factors hindered the growth and development of your firm as a certified DBE in the DBE program? Select all that apply.	10	1	8	51	5.10	2.961
Valid N (listwise)	4					

Table 20 Descriptives FDOT – Decertified DBEs

Descriptive Statistics						
	N	Minimum	Maximum	Sum	Mean	Std. Deviation
Why did your firm decertify from the DBE program?	4	1	1	4	1.00	.000
How long was your firm a certified DBE?	4	2	3	10	2.50	.577
Did your firm participate in the () DOT business development program (BDP)?	4	1	2	5	1.25	.500
Did your firm participate in the () DOT mentor/protégé program?	4	1	2	7	1.75	.500
Has your firm received any of the following advantages of the DBE program?	4	1	4	10	2.50	1.732
Has your firm secured more or less () DOT construction contracts competing in the open market outside of the program?	4	0	0	0	.00	.000
How was your firm made aware of the DBE business development training opportunities?	4	1	6	11	2.75	2.363
The DBE program prepared your firm to compete successfully on the open market outside of the program.	4	1	2	7	1.75	.500
The DBE program model creates DBE dependency on the program.	4	2	3	9	2.25	.500
DBE firms are encouraged by () DOT to grow and development in order to graduate from the program.	4	1	3	10	2.50	1.000
What factors contribute to the decertification of firms from the DBE program? Select all that apply.	4	4	6	22	5.50	1.000
Which, if any, of the following factors hindered the growth and development of your firm as a certified DBE in the DBE program? Select all that apply.	4	4	8	24	6.00	2.309
Valid N (listwise)	4					

Table 21 Descriptives IDOT – Decertified DBEs

Descriptive Statistics						
	N	Minimum	Maximum	Sum	Mean	Std. Deviation
Why did your firm decertify from the DBE program?	3	1	3	6	2.00	1.000
How long was your firm a certified DBE?	3	1	4	6	2.00	1.732
Did your firm participate in the ()DOT business development program (BDP)?	4	1	2	7	1.75	.500
Did your firm participate in the ()DOT mentor/protégé program?	4	2	2	8	2.00	.000
Has your firm received any of the following advantages of the DBE program?	3	4	4	12	4.00	.000
Has your firm secured more or less ()DOT construction contracts competing in the open market outside of the program?	4	0	1	1	.25	.500
How was your firm made aware of the DBE business development training opportunities?	4	2	6	20	5.00	2.000
The DBE program prepared your firm to compete successfully on the open market outside of the program.	4	1	3	7	1.75	.957
The DBE program model creates DBE dependency on the program.	4	1	5	11	2.75	2.062
DBE firms are encouraged by ()DOT to grow and development in order to graduate from the program.	4	1	3	8	2.00	1.155
What factors contribute to the decertification of firms from the DBE program? Select all that apply.	4	2	6	19	4.75	1.893
Which, if any, of the following factors hindered the growth and development of your firm as a certified DBE in the DBE program? Select all that apply.	4	1	7	15	3.75	2.500
Valid N (listwise)	3					

Table 22 Descriptives MDOT – Decertified DBEs

Descriptive Statistics						
	N	Minimum	Maximum	Sum	Mean	Std. Deviation
Why did your firm decertify from the DBE program?	1	4	4	4	4.00	.
How long was your firm a certified DBE?	1	2	2	2	2.00	.
Did your firm participate in the ()DOT business development program (BDP)?	1	2	2	2	2.00	.
Did your firm participate in the ()DOT mentor/protégé program?	1	2	2	2	2.00	.
Has your firm received any of the following advantages of the DBE program?	1	5	5	5	5.00	.
Has your firm secured more or less ()DOT construction contracts competing in the open market outside of the program?	1	1	1	1	1.00	.
How was your firm made aware of the DBE business development training opportunities?	1	6	6	6	6.00	.
The DBE program prepared your firm to compete successfully on the open market outside of the program.	1	2	2	2	2.00	.
The DBE program model creates DBE dependency on the program.	1	2	2	2	2.00	.
DBE firms are encouraged by ()DOT to grow and development in order to graduate from the program.	1	3	3	3	3.00	.
What factors contribute to the decertification of firms from the DBE program? Select all that apply.	1	2	2	2	2.00	.
Which, if any, of the following factors hindered the growth and development of your firm as a certified DBE in the DBE program? Select all that apply.	1	7	7	7	7.00	.
Valid N (listwise)	1					

Table 23 Descriptives NYSDOT – Decertified DBEs

Descriptive Statistics						
	N	Minimum	Maximum	Sum	Mean	Std. Deviation
Why did your firm decertify from the DBE program?	7	1	2	8	1.14	.378
How long was your firm a certified DBE?	10	1	5	24	2.40	1.265
Did your firm participate in the ()DOT business development program (BDP)?	9	1	2	17	1.89	.333
Did your firm participate in the ()DOT mentor/protégé program?	9	2	2	18	2.00	.000
Has your firm received any of the following advantages of the DBE program?	5	1	6	19	3.80	1.789
Has your firm secured more or less ()DOT construction contracts competing in the open market outside of the program?	9	0	1	2	.22	.441
How was your firm made aware of the DBE business development training opportunities?	10	1	6	24	2.40	2.119
The DBE program prepared your firm to compete successfully on the open market outside of the program.	9	1	6	22	2.44	2.128
The DBE program model creates DBE dependency on the program.	10	1	6	26	2.60	1.955
DBE firms are encouraged by ()DOT to grow and development in order to graduate from the program.	10	1	6	28	2.80	1.814
What factors contribute to the decertification of firms from the DBE program? Select all that apply.	9	2	6	49	5.44	1.333
Which, if any, of the following factors hindered the growth and development of your firm as a certified DBE in the DBE program? Select all that apply.	9	1	8	48	5.33	2.550
Valid N (listwise)	4					

Table 24 Descriptives TxDOT – Decertified DBEs

Descriptive Statistics						
	N	Minimum	Maximum	Sum	Mean	Std. Deviation
Why did your firm decertify from the DBE program?	29	1	4	41	1.41	.825
How long was your firm a certified DBE?	31	1	5	64	2.06	1.209
Did your firm participate in the ()DOT business development program (BDP)?	31	1	2	51	1.65	.486
Did your firm participate in the ()DOT mentor/protégé program?	31	1	2	58	1.87	.341
Has your firm received any of the following advantages of the DBE program?	14	2	5	55	3.93	.997
Has your firm secured more or less ()DOT construction contracts competing in the open market outside of the program?	25	0	1	6	.24	.436
How was your firm made aware of the DBE business development training opportunities?	30	1	6	98	3.27	2.212
The DBE program prepared your firm to compete successfully on the open market outside of the program.	31	1	6	95	3.06	1.982
The DBE program model creates DBE dependency on the program.	31	1	6	106	3.42	1.996
DBE firms are encouraged by ()DOT to grow and development in order to graduate from the program.	31	1	6	92	2.97	1.798
What factors contribute to the decertification of firms from the DBE program? Select all that apply.	27	2	6	128	4.74	1.767
Which, if any, of the following factors hindered the growth and development of your firm as a certified DBE in the DBE program? Select all that apply.	31	1	8	191	6.16	2.282
Valid N (listwise)	10					

5.3 Data Analysis Procedures

The research design models the measurement of DBE participation in BDPs as an outcome of relations between certified and decertified DBEs and their preparedness to compete in the construction marketplace outside of the DBE program. The models in the design conceptualize five different types of relations as key influences of participation and preparedness in the open market: 1) the relations between awareness of the BDP and participation in the BDP; 2) the relations between participation in the BDP and desire to compete as a prime or major subcontractor; 3) the relations between securing contracts in the open market and participation in the BDP; 4) the relations between participation in the BDP and development of DBE preparedness to compete in the open market; 5) the relations between the program objective, decertification factors and participation. The models do not attempt to include all variables that contribute to preparedness of DBEs to compete successfully in the marketplace outside the DBE program, but provide evaluation to inform and improve the operations of the program. (DOT, 2016, Cronbach and Associates, 1980).

5.3.1 Regression Model Steps

Inferential statistics are tools used to infer results according to a sample of a population (Salkind, 2000). This study used inferential statistics to test the hypotheses regarding certified and decertified DBEs participation in BDPs and ability to compete on the open market in the construction transportation market. Since the relationship between more than two variables were examined, regression was selected. The following were the steps implemented in the research for the development of the regression models.

1. Created data source for variables
2. Coded variables for testing
3. Selected best set of explanatory variables to test the hypothesis
4. Built the regression model
5. Inferred relations between variables based on results

5.3.2 Analysis 1 Certified Firms

5.3.2.1 Logistic Regression Model 1

The main objective of this analysis was to create Logistic Regression Model 1 to analyze the relationship between DBE awareness of the BDPs offered by SDOTs and participation of DBEs in the BDPs. Logistic regression was applied for all SDOTs and individually for each state. The Chi-square value was computed and tested for significance. The Chi-square test indicated there was significance between certified DBE firms that are aware of BDPs and Certified DBE firms that participate in the BDP. The relationship was significant for all SDOTs except FDOT. Table 25 shows the regression model results for all SDOTs combined and individually.

Table 25 Model 1 DBE Awareness and Participation in BDP

Model 1	N	Chi-square	df	Sig
All SDOTs	710	77.684	1	p<0.001
GDOT	57	6.850	1	p<0.001
FDOT	44	.031	1	.861
MDOT	125	18.590	1	p<0.001
NYSDOT	45	17.511	1	p<0.001
IDOT	57	14.156	1	p<0.001
TxDOT	382	22.154	1	p<0.001

This model is relevant to the research question: *RQ1 Do DBEs that are informed of and access program benefits voluntarily decertify?* Model 1 infers that DBEs that are aware of the BDPs participate in program offerings.

5.3.2.2 Logistic Regression Model 2

The main objective of this analysis was to create Nominal Regression Model 2 to analyze the relationship between DBE participation in the BDPs and desire to compete in the open market. Nominal regression was applied for all SDOTs and individually for each state. The Chi-square value was computed and tested for significance. The Chi-square test indicated there was significance between certified DBE firms that participate in BDPs and

their desire to compete as prime or major subcontractors outside of the DBE program. The relationship is only significant between all SDOTs and MDOT. Table 26 shows the regression model results for all SDOTs combined and individually.

Table 26 Model 2 DBE Participation in BDP and Desire to Compete in Open Market

Model 2	N	Chi-square	df	Sig
All SDOTs	716	9.884	4	p<0.05
GDOT	57	2.431	4	.657
FDOT	44	4.182	3	.242
MDOT	126	9.838	4	p<0.05
NYSDOT	48	2.695	4	.610
IDOT	57	1.748	3	.626
TxDOT	390	3.961	4	.411

This model is relevant to the research question: *RQ2 What elements contribute to the voluntary decertification of firms that cause decertification and qualification to compete on the open market?* Model 2 infers that DBEs that participate in BDPs desire to compete on the open market outside of the DBE program.

5.3.3 Analysis 2 Decertified Firms

5.3.3.1 Logistic Regression Model 3

The main objective of this analysis was to create Logistic Regression Model 3 to analyze the relationship between decertified DBEs firms securing more or less government contracts outside of the DBE program and participation in the BDP program while certified. Logistic regression was applied for all SDOTs. The Chi-square value was computed and tested for significance. The Chi-square test indicated there was no significance between certified DBE firms that decertify and secure more or less contracts and decertified DBE firms participation in the BDP while certified. Table 27 shows the regression model results for all SDOTs.

Table 27 Model 3 Decertified DBE Contracting Ability and BDP Participation

Model 3	N	Chi-square	df	Sig
All SDOTs	51	1.066	1	.302

This model is relevant to the research question: *RQ3 Are qualified DBEs securing prime contracts and major subcontracts after decertification?* Model 3 infers that there is no relationship between decertified DBEs securing more/less contracts and their participation in the BDP while certified.

5.3.3.2 Logistic Regression Model 4

The main objective of this analysis was to create Logistic Regression Model 4 to analyze the relationship between decertified DBEs firms that participated in the BDP program while certified and their preparedness to compete in the open market. Logistic regression was applied for all SDOTs. The Chi-square value was computed and tested for significance. The Chi-square test indicated there was no significance between decertified DBE participation in the BDP while certified and preparedness to compete in the open market. Table 28 shows the regression model results for all SDOTs.

Table 28 Participation in BDP and Decertified DBE Preparedness to Compete in the Open Market

Model 4	N	Chi-square	df	Sig
All SDOTs	59	2.598	4	.627

This model is relevant to the research questions: *RQ3 Are qualified DBEs securing prime contracts and major subcontracts after decertification?* Model 4 infers there is no relation between decertified DBEs that participated in the BDP while certified and preparedness to compete in the open market outside of the DBE program.

5.3.4 *Analysis 3 Program Administrators*

The main objective of this analysis was to provide evaluation of the program administrators interviewed for this research. The GDOT, FDOT, MDOT, IDOT, TxDOT and NYSDOT program administrators were contacted for the study. However, only the GDOT, FDOT, MDOT, TxDOT, and NYSDOT administrators participated in the survey interviews and their responses are reported in the following section. After multiple attempts to contact IDOT, the IDOT administrator was nonresponsive. It should also be noted that the NYSDOT interview was a pilot survey interview and not all interview questions were answered, and an attempt at a follow-up interview was unsuccessful. The failed attempt to reach some administrators may be due to the impact of the COVID-19 global pandemic and the relocation of staff working in remote locations as informed through the office phone voicemail system. The analysis of the interview data required minimal steps as there was no attempt to derive data using statistical models. The following describes the steps for this analysis:

1. Visited DOT website to access the SDOT directory
2. Obtained list of administrators
3. Identified DBE program administrators
4. Created contact list with names, titles, phone and email
5. Contacted administrator via phone and email
6. Requested permission to survey
7. Conducted interview with survey questions
8. Made multiple attempts to contact non-responsive administrators
9. Documented survey responses and general notes

5.3.4.1 Program Administrator Interviews

The program administrator interviews were conducted in a survey format which entailed structured questions related to the research question. Interviews are one of six sources of evidence used in case studies (Yin, 2006). This type of interview is important to the research analysis because it helps the researcher identify relevant sources of evidence (Yin, 2006). The interview analysis identified information that supported the hypothesis. There were five interviews conducted with five administrators participating. The interviews were conducted for five of the six cases of this study (Table 29).

Table 29 Program Administrators Interviews Conducted

Case	Participants (Titles)	Length	Dates
GDOT	1 Deputy Director of the EEO office Assistant Administrator - External Programs	90 min	January 26, 2021
TxDOT	1 Director, Office of Civil Rights	60 min	March 1, 2021
FDOT	1 DBE & Small Business Development Manager	50 min	March 17, 2021
MDOT	1 Assistant Director Office of Minority Enterprise	45 min	March 18, 2021
NYSDOT	1 Supervisor, DBE Certification Unit	15 min	October 12, 2020

5.3.4.2 Survey Interview Analysis

The input of the DBE program administrators was essential to determining if the DBE program is meeting the objective of assisting participants to compete in the open market. The participant responses were analyzed using the following research questions:

RQ2: What elements contribute to the voluntary decertification of firms that cause decertification and qualification to compete on the open market?

- What factors contribute to the decertification of firms?

RQ3: Are qualified DBEs securing prime contracts and major subcontracts after decertification?

- Is the DOT program meeting the objective to assist the development of firms that can compete successfully in the open market for transportation construction projects?
- Are all DBE firms encouraged to participate in the DBE business development program?

The results of the interviews provided expert opinion on the DBE program/policy, decertified and certified firms, and contributed to the answer of the research question. The program administrators also provided recommendations for program and policy improvements. Table 30 shows the survey questions and responses of all the SDOT program administrators that participated in the interviews. The results from the five administrator responses are summarized below.

Table 30 Program Administrator Interview Results

Questions	n	Responses
Program/Policy		
The DBE goal setting process for SDOTs should truly reflect the actual availability of ready, willing, and able DBEs in your local market area. Does ()DOT meet its DBE goals?	5	100% Yes 0% No
One objective of the DBE program is to assist the development of firms that can compete successfully in the marketplace outside the DBE program for transportation construction projects. Do you think the ()DOT DBE program meets this objective?	3	100% Yes 0% No
Do you think the current program model creates a DBE dependency on the program?	4	87.5% Yes 12.5% No
Are all DBE firms encouraged to participate in the DBE business development program?	4	100% Yes
Should there be a maximum amount of years firms can participate in the program?	4	0% Yes 100% No
Decertified Firms		
What percentage of DBE construction firms decertify annually from the program on average?	5	100% (0-5%)
What is the primary reason construction firms decertify through voluntarily withdrawal from the program?	5	20%Sale of Business
What is the primary reason construction firms decertify through voluntarily withdrawal from the program?	5	20%Loss of interest
What is the primary reason construction firms decertify through voluntarily withdrawal from the program?	5	60%No benefit
What factors contribute to the decertification of firms from the DBE program based on the primary reason above? Select all that apply.	5	20%Joint venture partnerships
What factors contribute to the decertification of firms from the DBE program based on the primary reason above? Select all that apply.	5	40%Type of construction service
What factors contribute to the decertification of firms from the DBE program based on the primary reason above? Select all that apply.	5	40%Contract scope and size
What factors contribute to the decertification of firms from the DBE program based on the primary reason above? Select all that apply.	5	20%Other
Does ()DOT track companies that decertify from the program?	5	20% Yes 80% No
Certified Firms		
Which factors do you think hinder DBE growth and development? Select all that apply.	5	100% Financing
Which factors do you think hinder DBE growth and development? Select all that apply.	5	80% Bonding
Which factors do you think hinder DBE growth and development? Select all that apply.	5	60% Competition
Which factors do you think hinder DBE growth and development? Select all that apply.	5	60% Education and Training
Which factors do you think hinder DBE growth and development? Select all that apply.	5	60% Other
Are certified DBEs encouraged to grow and develop their companies?	5	100% Yes 0% No

Table 30 (continued)

If yes for above, how are they encouraged?	4	87.5% Participation in business development programs (inlc. training) 12.5% Participation in mentor/mentee program
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Program/Policy

SDOTs that receive federal funding for transportation projects must set an overall goal for DBE participation in their DOT-assisted contracts (ECFR, 2016). One hundred percent of all cases reported that their programs were meeting their DBE goals. When asked if they believed their program was meeting the objective “to assist the development of firms that can compete successfully in the marketplace outside the DBE program for transportation construction projects, three of the respondents replied “yes”, one answered “yes” or “no”, and one did not provide a response. Though three of the administrators agree that their program assists in the development of DBEs, 87.5% also believe that the current DBE model creates a dependency on the program which may contribute to underdevelopment. The dependency on the DBE program creates undesirable outcomes that hinder the development of firms (Beliveau et al., 1991). The majority of administrators agreed that all DBE firms are encouraged to participate in the BDP, and participation can assist in the development of firms. However, four administrators do not think there should be a maximum year of participation. This is because size and scope of projects and the services of the contractor may prohibit growth due to the nature of the work.

Decertified Firms

As previously stated, firms decertify from the DBE program for various reasons and the decision to decertify may be voluntary or involuntary. The focus of this research is on voluntary reasons for decertification as defined by according to 49 CFR Part 26 which include: personal net worth greater than \$1.32 million, annual gross receipts over \$26.29, sale of business, loss of interest, ownership change, and no benefit to being certified. One hundred percent of the interview participants stated that few DBEs decertify from the program annually (>5%) for three of the voluntary reasons. Sixty percent of the cases agreed the primary reason firms decertify is no benefit of being a certified DBE. Sale of business and loss of interest are the other reasons. However, though there are few firms that voluntarily decertify, all of the participants identified several factors that contribute to decertification including: joint venture partnerships (20%), type of construction services offered (40%), contract scope and size (40%) and other reasons (20%).

Certified Firms

Certified firms are the primary stakeholders of the DBE program. They are the key benefactors of its advantages and disadvantages. The program was created and exists for these firms because of the social injustices endured by underrepresented populations in government contracting. The DBE program and other affirmative action programs, if effective, are instruments for improving social conditions (Rossi et al., 2004). The objectives of the program are centered on leveling the playing field for federally funded projects. The implementation of the DBE program has significantly increased participation of DBEs in government contracting as evident by regulatory mandates, however there are

factors that prohibit growth and development. As previously described in chapter 3, common themes in the theoretical frame suggest factors that prohibit the growth and development of certified firms in the DBE program. Since the inception of the program, there have been recurring issues that hinder the growth of DBE firms. Some of the issues include financing, bonding, competition, education and training, and other factors which are current issues for DBEs. One hundred percent of the interview participants stated financing as the primary factor that hinders DBE growth and development. Bonding (80%) is the second reason. The other factors are competition (60%), education and training (60%), and other (60%). According to the administrators, despite hindrances, certified DBEs are encouraged to grow and develop through BDPs. Four respondents stated that participation in business development programs including training (87.5%) and the mentor/mentee protégé program (12.5%) encourages firm growth.

Recommendations and Improvements

In addition to the structured survey questions, the program administrators offered recommendations and improvements for the growth and development of firms. Each participant was specifically asked the following: What do you think is one improvement of the federal DBE policy that can assist in the growth and development of firms? There were two overarching themes presented in the participant response to the question above: program goals and project scope and mentoring and partnering opportunities. The recommendations within these themes included: tier programming, payment over goals, triangular goal elimination, project scope breakdown, graduate provided mentoring, mentor/mentee protégé programs, networking programs, DBE partnerships, and small business resources. The following outlines the responses.

Program Goals and Project Scope

- Tier Program. There should be a certain dollar amount to cap each tier at a certain contract size. Firms that are successful at the first tier may advance to subsequent tiers.
- Payments Over Goals. Policy should emphasize payment over goals. Reporting needs to focus on the payment of DBEs to increase the race neutral number and decrease goals. Some states have billion-dollar projects and the focus on payments as opposed to goals would be more beneficial to DBEs for their advancement.
- Triangular Goal Elimination. DBE goals are set by SDOTs for three years. However, ability to meet the same goal every year of the three-year cycle does not account for the scope and size of projects that are let annually which causes variation in the goal percentages.
- Project Scope Breakdown. Projects scope should be broken down, when applicable, into smaller parts to allow more opportunities for DBE firms and create a level playing field.

Mentoring and Partnering Opportunities

- Graduate Mentorship. Decertified DBEs that voluntarily withdrew from the program and are successful in the open market should share experience with certified DBEs.
- Mentor/Mentee Protégé Program. The DOT DBE program policy does not require SDOTs to implement a mentor/mentee program requirement. Few SDOTs

implement a mentor/protégé program, which could further assist with the development of firms.

- Networking Programs. Provide networking opportunities for DBE firms to connect with prime contractors.
- DBE Partnering. Firms should partner for greater market share. Firms do not consider diversification to grow and develop.
- Small Business Resources. DBEs should consider participation in resources outside the DBE program. Agencies like the SBA offer free services for small business.

5.4 Sample Limitations

The study is an evaluative comparative case study. As such, the findings are limited to the cases observed, thus creating sampling limitations. The limitations of this research are unique to each stakeholder. There were 732 (7.3% response rate) certified DBE responses and 89 decertified DBE responses (>1% response rate). Five of six program administrators responded to the study. As reported by program administrators, a small percentage of DBEs decertify. This contributes to the small number of decertified respondents. According to this study, few SDOTs track decertified DBEs as they are no longer part of the program once decertified. Additionally, the federal DOT database that identifies decertified firms, does not identify the type of services offered, include contact data of decertified firms or offer a means of exporting data, which created a challenge to identifying decertified DBEs for data collection in this study. Because there was a low decertified DBE response per SDOT, the regression was performed on all states combined

as opposed to individually, which was also a limitation because it restricted the ability to analyze SDOTs individually.

5.5 Summary

The results of this analysis offer recommendations to stakeholders and new knowledge to the research topic and is described in the following chapter. This study is for research of my own initiative for the purpose of generating knowledge, which provides academic freedom to establish my own definitions of what the DBE program is about, its goals, and objectives, and what evaluation questions to be addressed, otherwise, program evaluators are not free to establish their own program definitions (Rossi et al., 2004). Figure 38 shows the evaluation outcome based on the analysis.

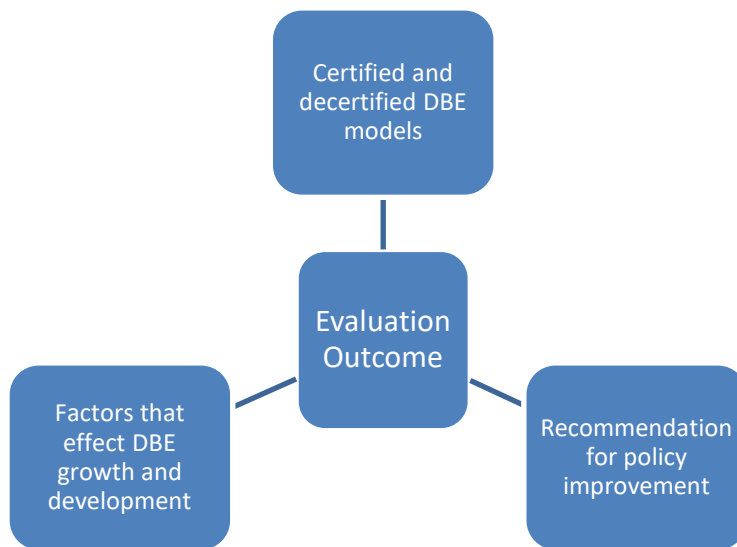


Figure 38 Evaluation Outcome (Source: Author)

CHAPTER 6. CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

This research aimed to evaluate the DBE program by answering the research question: *is the DBE program meeting the objective to assist the development of firms that can compete successfully in the construction marketplace outside the DBE program?* The main objective of this research was to identify factors that assist the growth and development of minority construction firms who decertify (become ineligible) and compete independently in the open market and to explore the issues of certified firms that hinder progression through observation of the GDOT DBE program and other similar SDOT programs. In order to achieve this objective, the study investigated the following questions:

RQ1: Do DBEs that are informed of and access program benefits voluntarily decertify?

RQ2: What elements contribute to the voluntary decertification of firms that cause decertification and qualification to compete on the open market?

RQ3: Are qualified DBEs securing prime contracts and major subcontracts after decertification?

The logic model in chapter 4 explained the relationship between the research objective and research design. The model showed that the inputs in the program: Assisting eligible businesses in becoming DBE-certified and ensures only eligible firms participate as DBEs; Establishing annual, statewide overall DBE participation goals and contract-

specific DBE subcontracting goals with Prime Contractors; Assisting DBEs with becoming part of the Georgia Unified Certification Program; Ensuring DBEs can compete fairly for federal/state funded projects; and Assisting DBE companies in their ability to compete outside the DBE Program lead to the desired long-term outcome of DBEs decertifying and competing successfully on the open market. The research design outlined the strategy for answering the research question and determining if the long-term outcome stated in the logic model is achieved. The outcome of the study provided relational and non-relational evidence of DBE participation BDPs and decertification, factors that affect DBE growth and development, and recommendations for program and policy improvements.

6.2 Implications of the Results

The findings of this study evaluated if the theory behind the proposed DBE model by Beliveau et al. (1991) (see chapter 3) is true that inputs of knowledge and assistance (as defined by the logic model) into the DBE program would lead to the output of the development of firms into independent qualified firms. The research findings achieved the objectives of this study. The findings of this research and their implications are summarized as follows:

- An interesting finding of the study is that a significant relationship exists between the awareness and participation of certified DBE firms in BDPs. Firms that are aware of the program and participate develop as a result. Certified firms that participate in BDPs desire to compete on the open market. This supports the new model proposed by Beliveau et al. that inputs of knowledge and assistance into DBEs that participate in the DBE program leads to the development of firms.

However, findings do not suggest that firms develop into independent contractors that can successfully compete in the open market after participation in development opportunities.

- There were no statistically significant relationships between decertified DBEs securing more/less construction transportation contracts and their participation in the open market or between their participation and preparedness to successfully compete. Additionally, the researcher's review of a sampling of GDOT bid awards from recent years for transportation construction projects did not appear to show awarded contracts to the decertified participants of this study. This means that firms may grow and develop through participation in BDPs and not successfully compete in the open market as independent contractors. This supports the finding that the primary reason firms voluntarily decertify is because they do not see a benefit.
- The research found that most of the SDOTs that participated in this study believe all firms are encouraged to participate in the BDP. The majority of the administrators stated that their programs use third-party supportive services to assist DBEs in the growth and development of their firms. However, specific to GDOT, it was reported that supportive services does an assessment to identify firms that successfully participate in program offerings. This implies that the DBE program is meeting the objective to assist the development of firms that can compete successfully in the marketplace outside of the program.

6.3 Research Contribution

There are three outcomes of this research that contributes to the body of knowledge: regression models, development and decertification models, and program administrator recommendations.

6.3.1 Regression Models

The development of regression models, provides evidence that DBEs are encouraged to participate in BDPs. The models show firms that participate are made aware of the BDP opportunities primarily through email and verbal communication. GDOT confirmed that their supportive services announce development opportunities based on NAICS codes and DBE attendance at pre-bid meetings. They also send service blasts to DBEs based on types of services the firms provide.

6.3.2 Development and Decertification Factors

This research confirms the continuation of factors that contribute to the growth and development of DBEs and offers new factors that contribute to decertification. As previously stated, early research on DBE impediments conducted by Glover (1977) cited that financing, marketing, bonding, and recruiting, retaining and training labor issues in addition to lack of business management skills were issues minority firms faced. Program administrators state that bonding, financing, competition, education and training are the primary hindrances of DBE growth and development today. There are also factors that contribute to decertification of firms. The top reasons for decertification are type of services offered and contract size and scope and joint venture partnerships.

6.3.3 Program Administrator Recommendations

Research has shown that suggestions for improvements to the DBE program has been a consequence of its existence. “Public officials have been depending to an increasing extent on knowledge derived from research, policy analysis, program evaluations to inform or buttress their views” (Lynn, 1980). The models show and program administrators agree that firms are encouraged to participate in BDPs, which assists in growth and development of firms. However, factors such as project size and scope and the type of services offered limits the contracts DBEs can bid. This supports why firms are dependent on and remain in the program, and administrators do not believe there should be a maximum year of participation. However, most administrators agreed that firms are not establishing themselves to grow and diversify. If DBEs do not take advantage of the BDP and other development opportunities, the decertification because of no benefit may be due lack of initiative and proactive measures on the part of the DBE. One program administrator stated, “Firms that want to move forward, move forward.”

Administrators agree that participation in BDPs encourages growth and development, but the regression models show that this does not ensure firms can successfully compete in the open market outside of the DBE program. One program administrator offered that firms may not consider working in the open market, because it limits the ability of primes to meet DBE percentages and decreases decertified DBE opportunities to partner. However, dependent on the scope, size and services offered by the decertified DBE firm, some firms could compete successfully on larger projects. Administrators offered program and policy recommendations relative to program goals and project scope and mentoring and partnering opportunities. The recommendations included:

tier programming, payment over goals, triangular goal elimination, project scope breakdown, graduate provided mentoring, mentor/mentee protégé programs, networking programs, DBE partnerships, and small business resources as described in the research analysis. There are also reoccurrences of program recommendations that have not been implemented, such as the elimination of the minority goal requirement (El-Itr et al. and Kangari, 1994).

6.4 Limitations and Future Research

6.4.1 Limitations

As with most evaluative case studies, there were some limitation to this research. The major limitation of this research is that the identification of decertified firms that provide construction related services is not available in the DOT database and most SDOT websites, which restricts the sampling size of DBEs. Another limitation is that small sampling size of decertified firms restricted the analysis of decertified DBEs by SDOT as the regression could only be created for all SDOTs combined. The impact of the COVID-19 pandemic that progressed through the data collection and analysis period of this study may have caused constraints and contributed to the low response rates. Researchers found in a study of the impact of COVID-19 on small businesses that 43% of those sampled had temporarily closed and nearly all closures were due to the global pandemic (Bartik et al., 2020). According to MBDA, minority business enterprises (MBEs) “have been particularly hurt by and continue to face enormous challenges due to COVID-19” (MBDA, 2021). Most MBEs are small business and need access to federal government resources (MBDA, 2021).

The key participants of this study were certified DBEs, decertified DBEs and program administrators. However, non-DBEs are a key stakeholder of the program. Further research from the perspective of this group on the topic of this study may contribute to the body of knowledge. This is because non-DBEs are typically the prime contractors for federally funded projects that secure the largest construction contracts and partner with DBEs to meet DBE goals for project scope requirements. Their insight may offer policy improvements to reduce program dependency, address program impediments, and assist with the growth and development of DBEs.

6.4.2 Recommendations and Future Research

From a historical perspective there has been progression with the DBE program, however, there are areas for improvement. DBE policy and regulation have created the opportunity to level the playing field in the procurement of government transportation projects. For example, the implementation of section 105(f) of the Surface Transportation Act of 1982 regulates not less than 10% of allocated federal assistance for transportation projects should be extended to DBEs (STAA, 1982). The enactment of this law has led to an increase in minority contractor work volume for the past two decades, yet program dependence, performance, internal impediments, and external impediments challenges continue to exist for DBEs. Policy makers may benefit from this research by evaluating the inputs of the program as outlined by the logic model of this study and the implementation of their activities to amend policy that mandates a mentor/protégé program, requires BDP programs to include business management principles that assist in the diversification of services for the DBE, and considers adjustment for DBE goals that that incorporate project scope and type of DBE service offerings as defined by the

administering SDOT. Typical construction services for DBEs include hauling materials, traffic control, and highway signage are representative of DBE subcontract awards which are typically small requirements of a transportation contract scope of work. Encouraging DBEs to expand their business model to include services for procurement of larger scopes of work like concrete structures and steel reinforcement may enhance the state of DBEs in the marketplace by creating the opportunity to secure more contracts due to more diversified service offerings.

Decertification or “graduation” is not a programmatic or policy goal for the DBE program. Disparity studies and the longevity of issues that continue to surround the program as described in the development and decertification factors contributed by this research, support the need for the program to exist. Thereby suggesting that the playing field for underrepresented by populations in the construction transportation market is unlevelled and there is need for program evaluation. In fact, it could be argued that program success is achieved because of DBE ability to obtain certification and secure more government contracts due to the benefits of the program. However, considering the billions of dollars allocated to construction transportation projects, the success is unbalanced. The research findings show that there is evidence of the program meeting its objective to assist firms in their growth and development. Nevertheless, more evaluation on the levels of success that could be achieved by participants should be considered including accomplishment in the marketplace outside of the program. This supports that program input from decertified firms could be invaluable to certified firms. The tracking of DBE firms by SDOTs that have decertified and those that recertify should also be considered to improve evaluations and is a topic for future research. It should be also noted that at the

conclusion of this study, DBE regulations increased the size standard for annual gross receipt from \$23.98 million to \$26.29 million (DOTe, 2021). This may warrant future research on decertified DBEs that recertify due to this change in policy.



Protocol Number: H20130

Funding Agency: N/A

Review Type: Exempt, Category 2

Title: Disadvantaged Business Enterprises: Effect of Decertification and Competing in the Georgia Transportation Construction Marketplace

March 10, 2020
Javier Irizarry
School of Building Construction
javier.irizarry@gatech.edu

Dear Dr. Irizarry:

The Institutional Review Board (IRB) has carefully considered the referenced protocol. Your approval is effective as of **03/10/2020**. The proposed procedures and affiliated documents are exempt from further review by the Georgia Tech Institutional Review Board.

Minimal risk research qualified for exemption status under 45 CFR 46 104d.2.

Thank you for allowing us the opportunity to review your plans. If any complaints or other evidence of risk should occur, or if there is a significant change in the plans, the IRB must be notified.

For your reference, detailed PI responsibilities are included following this letter. If you have any questions concerning this approval or regulations governing human subject activities, please contact me at 404.385.5208.

Sincerely,

A handwritten signature in black ink, appearing to read "Scott Katz", with a stylized flourish at the end.

Scott Katz, MS, CIP
Research Associate
Compliance and Regulatory Affairs
Office of Research Integrity Assurance
Georgia Institute of Technology

cc: Barbara Henry, IRB Chair

Principal Investigator Responsibilities

Investigators who involve human subjects in their research have several specific responsibilities, some institutional, some regulatory, as indicated below:

A. Investigator Responsibilities Required by Georgia Institute of Technology Institutional Review Board

All investigators at Georgia Tech must comply with these Policies & Procedures when conducting research involving human subjects.

Investigators must:

1. Obtain approval from the Georgia Tech Institutional Review Board before undertaking research with human subjects.
2. Receive a written letter of approval from the Office of Research Integrity Assurance to document that IRB review occurred and approval was given. (Such letters of approval are frequently required by the funding sponsor and by publishers prior to publication in refereed journals).
3. Conduct every aspect of the project as approved by the Georgia Tech IRB.
4. Seek IRB review and approval by prior to revising the protocol. (The only exception to this policy is in situations where changes in protocol are required to eliminate apparent, immediate hazards to subjects).
5. Promptly report any unanticipated problems involving risks to subjects or others.
6. Assume full responsibility for selecting subjects in strict accordance with the inclusion/exclusion criteria outlined in the application materials.
7. Use only IRB-approved consent language. Approved consent documents are date-stamped by Office of Research Integrity Assurance. While there is no federal requirement that consent documents must be date-stamped, the specific approved language must be used in the consent process.
8. Comply with the applicable DHHS and FDA regulations, including the investigator responsibilities specified by both agencies.

B. Investigator Responsibilities Required by DHHS Regulations at §45CFR46

1. IRB Review and Approval

Investigators are responsible for obtaining IRB approval before beginning any human subjects research (§45CFR46.109(a) and (d)). Investigators are responsible for providing the IRB with sufficient information and related materials about the research (e.g., grant applications, research protocols, sample consent documents) so that the IRB can fulfill its regulatory obligations, including making the required determinations under §45CFR46.111 and, if applicable, subparts B, C and D. Investigators should follow institutional policies and procedures for IRB review that are required by HHS regulations at §45CFR46.103.

Investigators play a crucial role in protecting the rights and welfare of human subjects and are responsible for carrying out sound ethical research consistent with research plans approved by an IRB. Along with meeting the specific requirements of a particular research study, investigators are responsible for ongoing requirements in the conduct of approved research that include, in summary:

2. Informed Consent

Investigators are responsible for obtaining and documenting the informed consent of research subjects or their legally authorized representatives, unless the IRB approves a waiver of informed consent, or a waiver of documentation of informed consent, respectively (§45CFR46.116, §45CFR46.117). Investigators must give a copy of the informed consent document to each research subject (or the subject's legally authorized representative), and keep the signed original or a

copy of it for their records (§45CFR46.117(a); §45CFR46.115(b)). When the documentation requirement is waived, the IRB may require investigators to provide subjects with a written statement regarding the research (§45CFR46.117(c)(2)).

3. Amendments

Investigators are responsible for obtaining prior approval from the IRB for any modifications of the previously approved research, including modifications to the informed consent process and document, except those necessary to eliminate apparent immediate hazards to subjects (§45CFR46.108(a)(3)(iii)). If investigators wish to modify an ongoing IRB approved research study, they must submit a request to the IRB and receive IRB approval before implementing the proposed modification, unless the change is designed to eliminate an apparent immediate hazard to subjects (§45CFR46.103(b)(4)). If the investigators change the research in order to eliminate apparent immediate hazards to subjects without prior IRB approval, they should report those changes promptly to the IRB. The HHS protection of human subjects regulations allow for expedited review and approval of requests for minor changes in previously approved studies (§45CFR46.110(b)(1)).

4. Amendments that Render Exempt Research Nonexempt

Investigators should consult with the appropriate institutional authority whenever questions arise about whether planned changes to an exempt study [defined at §45CFR46.104(d)] might make that study nonexempt human subjects research. The designated entity at Georgia Tech for making a determination of exemption is the Institutional Review Board. If a determination of exemption is made by an authorized member of the IRB, the Office of Research Integrity Assurance will issue a letter of exemption. *Investigators at Georgia Tech do not have the authority to make an independent determination that human subjects research is exempt.*

5. Progress Reports and Continuing Review

Continuing review of minimal risk research is not required, unless otherwise determined by the IRB (§45CFR46.109(f)(1)). If research is determined and justified to require continuing review, investigators are responsible for ensuring that progress reports and requests for continuing review and approval are submitted to the IRB in accordance with the policies, procedures, and actions of the IRB as referenced in the institution's OHRP-approved Federalwide assurance (§45CFR46.108(a)(3), (45CFR46.109(e)).

Investigators are responsible for fulfilling requirements associated with continuing review in time for the IRB to carry out review prior to the expiration date of the current IRB approval. Investigators are responsible for submitting all required materials and information for the IRB to meet its regulatory obligations, and should follow the institutional policies and procedures for continuing IRB review of research that are required by HHS regulations at §45CFR46.109(e) and referenced in the institution's OHRP-approved Federalwide assurance.

If IRB approval of a specific study expires before continuing review and approval occur, investigators must stop all research activities involving human subjects related to that study (§45CFR46.103(a)), except where they judge that it is in the best interests of already enrolled subjects to continue to participate. When investigators make this judgment, they must promptly notify the IRB (§45CFR46.108(a)(4)). When the IRB reviews the investigator's decision, it may decide whether it is in the best interests of already enrolled subjects to continue to participate in the research by considering the best interests of subjects either one at a time or as a group. If an IRB determines that it is not in the best interests of already enrolled subjects to continue to participate, investigators must stop all human subjects research activities, including intervening or interacting with subjects, or obtaining or analyzing identifiable private information about human subjects (§45CFR46.103(a)). Investigators may resume the human subjects research activity once continuing review and approval by the IRB has occurred.

6. Records the Investigator Must Keep

The HHS protection of human subjects regulations require institutions to retain records of IRB activities and certain other records frequently held by investigators for at least three years after completion of the research (§45CFR46.115(b)).

Documentation of the informed consent of the subjects - either the signed informed consent form or the short form and the written research summary - are records related to conducted research [§45CFR46.115(b)] that *must be retained by investigators for at least three years after completion of the research*, unless the IRB waived the requirement for informed consent or for documentation of informed consent (§45CFR46.117).

Investigators must retain the records in hardcopy, electronic or other media form accessible for inspection and copying by authorized representatives of HHS at reasonable times and in a reasonable manner (§45CFR46.115(b)). Retention of multiple copies of each record is not required. Investigators should follow the institution's Policies & Procedures for retaining records. If investigators who have been designated to retain records on behalf of the institution leave that institution, the investigators and the institution should identify the successor responsible for maintaining those institutional records, either at the original institution or wherever the records are relocated, for the period of time required under HHS regulations at §45CFR46.115(b). Other regulations or policies may apply to the retention of records, including study data.

7. Additional DHHS Regulatory Requirements

In certain circumstances, investigators are responsible for meeting the following additional regulatory requirements:

- providing to the IRB prompt reports of any unanticipated problems involving risks to subjects or others §45CFR46.108(a)(4);
- providing to the IRB prompt reports of serious or continuing noncompliance with the regulations or the requirements or determinations of the IRB (§45CFR46.108(a)(4));

C. Conflict of Interest

A conflict of interest occurs when there is a divergence between an individual's private interests and his or her professional obligations to the Institute, such that an independent observer might reasonably question whether the individual's professional actions or decisions are influenced by considerations of personal gain, financial or otherwise. A conflict of interest depends on the situation, and not on the character or actions of the individual.

Conflicts of interest are common and practically unavoidable in a modern research university. At the Georgia Institute of Technology, conflicts of interest can arise out of the fact that a mission of the Institute is to promote public good by fostering the transfer of knowledge gained through Institute research and scholarship to the private sector. Two important means of accomplishing this mission include faculty consulting and the commercialization of technologies derived from faculty research. It is appropriate that faculty be rewarded for their participation in these activities through consulting fees and sharing in royalties resulting from the commercialization of their work. These rewards may be misunderstood or misconstrued and must therefore be carefully managed and appropriately disclosed.

Investigators who have a substantial financial interest in the outcome of the research, and those whose family members have a substantial financial interest in the outcome of the research, must, during the consent process, disclose the conflict to potential subjects. This includes providing a written disclosure on the consent form to explain and document the disclosure.

An appropriately managed conflict that is fully disclosed to participants does not always negatively affect recruitment. Appropriately managed conflicts are registered with the Georgia Tech Research Corporation Office of Conflict of Interest Management, and approved plans for management are to be on record with that office. Questions should be forwarded to the Office of Research Integrity Assurance.

There will be cases in which the Georgia Institute of Technology has a financial interest in the research project, and in those cases, disclosure must likewise be made and documented during the consent process.

Finally, no investigator who is a member of the reviewing IRB participates in the review of any study on which he has a potential conflict of interest or is named on the research team.

To contact the Conflict of Interest Office for more information, please visit <http://coi.research.gatech.edu/>

EXEMPT RESEARCH CONSENT

Project Title: Disadvantage Business Enterprises: Effect of Decertification and Competing in the Transportation Construction Marketplace

Principal Investigator: Javier Irizarry, Ph.D.

Student: Irish Horsey

Duration of Study: 15 minutes

Number of Participants: Over 1500 (DBE contractors, DBE graduates and program coordinators from GDOT and similar SDOT programs)

Total Compensation: None

Participation Limitation: Normal or corrected to normal vision. Basic computer and technical skill.

You are being asked to be a volunteer in a research study. The purpose of this study is to study investigates the development of certified and decertified disadvantaged business enterprise (DBE) construction firms to compete in the open market for increased diversity in the construction industry. Understanding the factors that contribute to the success of DBE program graduates (decertified firms) that compete outside the DBE program may assist currently certified firms with the growth and development of their companies. This is a research project being conducted by Irish Horsey, a student at the Georgia Institute of Technology. The survey will take approximately minutes to complete. Your survey answers will be sent to a link at SurveyMonkey.com where data will be stored in a password protected electronic format. Survey Monkey does not collect identifying information such as your name, email address, or IP address. Therefore, your responses will remain anonymous. No one will be able to identify you or your answers, and no one will know whether or not you participated in the study. The risks involved are no greater than those involved in daily activities. You will not benefit or be compensated for joining this study. We will comply with any applicable laws and regulations regarding confidentiality. To make sure that this research is being carried out in the proper way, the Georgia Institute of Technology IRB may review study records. The Office of Human Research Protections may also look at study records. If you have any questions about the study, you may contact , Dr. Javier Irizarry at telephone (404) 385-7609 or javier.irizarry@coa.gatech.edu. If you have any questions about your rights as a research subject, you may contact Ms. Melanie Clark, Georgia Institute of Technology at (404) 894-6942. Thank you for participating in this study.

APPROVED

Consent Form Approved by Georgia Tech IRB: March 10, 2020 - Indefinite

APPENDIX A. SURVEY QUESTIONNAIRES

Certified DBE Questionnaire

1. How old is your firm?
 - a. 0-5 years
 - b. 6-10 years
 - c. 11-15 years
 - d. 15-20 years
 - e. 21 or more years
2. What size is your firm?
 - a. 1-10 employees
 - b. 11-20 employees
 - c. 21-30 employees
 - d. 31- 40 employees
 - e. 41-50 employees
 - f. 51 or more employees
3. Which construction services does your firm offer?
 - a. Construction
 - b. Professional services
 - c. Manufacturing of construction materials
 - d. Other
4. My firm would like to compete as a prime or major subcontractor outside of the DBE program now or in the future?
 - a. Strongly Disagree
 - b. Disagree
 - c. Neutral
 - d. Agree
 - e. Strongly Agree
 - f. Not Applicable
5. The DBE program prepares companies to compete in the open market outside of the program?
 - a. Strongly Disagree
 - b. Disagree
 - c. Neutral
 - d. Agree
 - e. Strongly Agree
 - f. Not Applicable

6. Which best describes your firm's average government construction contract award value?
 - a. \$0-\$20K
 - b. \$21-\$40K
 - c. \$41-\$60K
 - d. \$61-\$80K
 - e. \$91-\$100K
 - f. \$100K or more
 - g. \$1M or more
7. What percentage of your firm's revenue is from GDOT construction projects?
 - a. 0%
 - b. 1-10%
 - c. 11-20%
 - d. 21-30%
 - e. 31-40%
 - f. 41-50%
 - g. 51-75%
 - h. Nearly or 100%
8. 51% or more What type(s) of minority-owned business certification does your firm have? Select all that apply.
 - a. Disadvantaged Business Enterprise (DBE)
 - b. Minority Business Enterprise (MBE)
 - c. Woman Business Enterprise (WBE)
 - d. Other
9. How long has your firm been a DBE certified?
 - a. 0-5 years
 - b. 6-10 years
 - c. 11-15 years
 - d. 15-20 years
 - e. More than 20 years
10. Is your firm aware of the business development programs offered by GDOT?
 - a. Yes
 - b. No
11. How was your firm made aware of the DBE business development training opportunities?
 - a. Letter
 - b. Email
 - c. Phone call
 - d. Advertisement
 - e. Verbal communication
 - f. Not Applicable
12. Has your firm participated in the business development program training courses offered by GDOT?
 - a. Yes

- b. No
- 13. Is your firm aware of the mentor/protégé program offered by GDOT?
 - a. Yes
 - b. No
- 14. Has your firm participated in the mentor/protégé program offered by GDOT?
 - a. Yes
 - b. No
- 15. The current DBE program model makes it difficult to graduate from the DBE program.
 - a. Strongly Disagree
 - b. Disagree
 - c. Neutral
 - d. Agree
 - e. Strongly Agree
 - f. Not Applicable
- 16. Has your firm received any of the following advantages of the DBE program?
 - a. Increased partnering opportunity with majority businesses
 - b. Market access
 - c. Improved relationship with owner/prime contractors
 - d. Increased opportunity for profit
 - e. Financial security for work done
 - f. Increased access to business consultation training
 - g. Decreased competition
- 17. Which factors are hindering your firm's growth and development? Select all that apply.
 - a. Financing
 - b. Bonding
 - c. Competition
 - d. Education and Training
 - e. Qualified Employees
 - f. Technology
 - g. Firm Size
 - h. Other
 - i. Not Applicable
- 18. Prime contractors partner with the same subcontractors?
 - a. Strongly Disagree
 - b. Disagree
 - c. Neutral
 - d. Agree
 - e. Strongly Agree
 - f. Not Applicable
- 19. How many joint venture partnerships has your firm had with prime contractors in the past 10 years?
 - a. 0-5

- b. 6-10
 - c. 11-15
 - d. More than 15
20. Has your firm primarily worked with:
- a. The same prime contractor
 - b. Different prime contractors
 - c. None

Decertified DBE Questionnaire

1. Did your firm provide construction related services when certified as a DBE? Please do not continue with this survey if your firm is currently a certified DBE.
 - a. Yes
 - b. No
2. Why did your firm decertify from the DBE program?
 - a. Personal net worth exceeds \$1.32 million
 - b. Annual gross receipts over \$23.98 million
 - c. Sale of business
 - d. Loss of interest in program participation
 - e. Change in ownership
 - f. No benefit of being a certified DBE
3. How long was your firm a certified DBE?
 - a. 0-5 years
 - b. 6-10 years
 - c. 11-15 years
 - d. 15-20 years
 - e. More than 20 years
4. Did your firm participate in the GDOT business development program (BDP)?
 - a. Yes
 - b. No
5. Did your firm participate in the GDOT mentor/protégé program?
 - a. Yes
 - b. No
6. Has your firm received any of the following advantages of the DBE program?
 - a. Increased partnering opportunity with majority businesses
 - b. Market access
 - c. Improved relationship with owner/prime contractors
 - d. Increased opportunity for profit
 - e. Financial security for work done
 - f. Increased access to business consultation training
 - g. Decreased competition

7. Has your firm secured more or less GDOT construction contracts competing in the open market outside of the program?
 - a. More
 - b. Less
8. Has your firm been awarded any prime or major subcontracts outside of the DBE program for GDOT projects?
 - a. Yes
 - b. No
9. Which best describes the services your firm offers?
 - a. Construction
 - b. Professional services
 - c. Manufacturing of construction materials
 - d. Other
10. Prime contractors partner with the same DBE firms in the open market.
 - a. Strongly Disagree
 - b. Disagree
 - c. Neutral
 - d. Agree
 - e. Strongly Agree
 - f. Not Applicable
11. How was your firm made aware of the DBE business development training opportunities?
 - a. Letter
 - b. Email
 - c. Phone call
 - d. Advertisement
 - e. Verbal communication
 - f. Not Applicable
12. The DBE program prepared your firm to compete successfully on the open market outside of the program.
 - a. Strongly Disagree
 - b. Disagree
 - c. Neutral
 - d. Agree
 - e. Strongly Agree
 - f. Not Applicable
13. The DBE program model creates DBE dependency on the program.
 - a. Strongly Disagree
 - b. Disagree
 - c. Neutral
 - d. Agree
 - e. Strongly Agree
 - f. Not Applicable

14. DBE firms are encouraged by GDOT to grow and development in order to graduate from the program.
- Strongly Disagree
 - Disagree
 - Neutral
 - Agree
 - Strongly Agree
 - Not Applicable
15. The GDOT DBE program is meeting its objective to assist the development of firms that can compete successfully in the marketplace outside the DBE program.
- Strongly Disagree
 - Disagree
 - Neutral
 - Agree
 - Strongly Agree
 - Not Applicable
16. What factors contribute to the decertification of firms from the DBE program? Select all that apply.
- Participation in the business development program
 - Participation in the mentor/mentee protégé program
 - Joint venture partnerships
 - Type of construction services offered by the DBE
 - Contract scope and size
 - Age of the DBE firm
 - Number of years in the DBE program
 - Other
17. Which, if any, of the following factors hindered the growth and development of your firm as a certified DBE in the DBE program? Select all that apply.
- Financing
 - Bonding
 - Competition
 - Education and Training
 - Qualified Employees
 - Technology
 - Firm Size
 - Other
 - Not Applicable
18. Has your firm been a prime or major subcontractor for GDOT construction projects since decertification from the program?
- Yes
 - No
19. Does your firm contract with local municipalities for construction transportation projects?
- Yes

- b. No
- 20. What percentage of your firm's revenue is from GDOT construction projects?
 - a. 0%
 - b. 1-10%
 - c. 11-20%
 - d. 21-30%
 - e. 31-40%
 - f. 41-50%
 - g. 51-75%
 - h. Nearly or 100%
- 21. Would your firm consider recertification with the DBE program?
 - a. Definitely would
 - b. Probably would
 - c. Probably would not
 - d. Definitely would not

DBE Administrator Questionnaire

- 1. The DBE goal setting process for SDOTs should truly reflect the actual availability of ready, willing, and able DBEs in your local market area. Does GDOT meet its DBE goals?
 - a. Yes
 - b. No
- 2. One objective of the DBE program is to assist the development of firms that can compete successfully in the marketplace outside the DBE program for transportation construction projects. Do you think the GDOT DBE program meets this objective?
 - a. Yes
 - b. No
- 3. What percentage of DBE construction firms decertify annually from the program on average?
 - a. 0-5%
 - b. 6-10%
 - c. 11-15%
 - d. 16-20%
 - e. 21-25%
 - f. 26% or more
 - g. Unknown
- 4. What is the primary reason construction firms decertify through voluntarily withdrawal from the program?
 - a. Personal net worth exceeds \$1.32 million

- b. Annual gross receipts over \$23.98 million
 - c. Sale of business
 - d. Loss of interest in program participation
 - e. Change in ownership
 - f. No benefit of being a certified DBE
- 5. What factors contribute to the decertification of firms from the DBE program based on the primary reason above? Select all that apply.
 - a. Participation in the business development program
 - b. Participation in the mentor/mentee protégé program
 - c. Joint venture partnerships
 - d. Type of construction services offered by the DBE
 - e. Contract scope and size
 - f. Age of the DBE firm
 - g. Number of years in the DBE program
 - h. Other
- 6. Does GDOT track companies that decertify from the program?
 - a. Yes
 - b. No
- 7. Are certified DBEs encouraged to grow and develop their companies? If yes, how are the encouraged? Yes/No
 - a. Participation in the business development program
 - b. Participation in the mentor/mentee protégé program
 - c. Participation in training courses
- 8. Do you think the current program model creates a DBE dependency on the program?
 - a. Yes
 - b. No
- 9. Are all DBE firms are encouraged to participate in the DBE business development program?
 - a. Yes
 - b. No
- 10. Which factors do you think hinder DBE growth and development? Select all that apply.
 - a. Financing
 - b. Bonding
 - c. Competition
 - d. Education and Training
 - e. Qualified Employees
 - f. Technology
 - g. Firm Size
 - h. Other
 - i. Not Applicable

11. Should there be a maximum about of years firms can participate in the program?
 - a. Yes
 - b. No
12. What do you think is one improvement to the federal DBE policy that can assist in the growth and development of firms?

General Notes:

There is limited data on firms that decertify from the DBE programs. Do you think this data could be helpful for certified DBEs?

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